United States Court of Appeals

for the

District of Columbia Circuit

TRANSCRIPT OF RECORD

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BRIEF FOR PLAINTIFF-APPELLANT

IN THE

United States Court of Appeals for the District of Columbia Circuit

◆

No. 15,457

932

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THOMAS S. DONNELLY, JR.,
Plaintiff and Appellant,

vs.

ROBERT C. WATSON, Commissioner of Patents,
Defendant and Appellee

◆

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

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ited States Court of Appeals
For the
District of Columbia Circuit

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Joseph W. Stewart
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ALBERT W. RINEHART,
1311 G Street, N. W.,
Washington 5, D. C.;
ROBERT G. MENTAG,
3437 Book Tower,
Detroit 26, Michigan,
Counsel for Plaintiff-Appellant.

Interstate Brief & Record Co., 642 Beaubien St., Detroit 26, Michigan

STATEMENT OF QUESTIONS PRESENTED

1. The first question is whether or not the electrode holder in issue would, in the absence of the teachings of the application in issue, but solely from a consideration of the prior art, be obvious to one skilled in the electrode holder art who had been, with the prior art electrode holders before him, experimenting for years and building various types of electrode holders to obtain the results and functions of the present electrode holder in issue, that is, to obtain the features of coolness, lightness, preventing fraying and breaking of the electric power cable, and the maintaining of a proper balance in the electrode holder, which results and functions were discovered to be necessary from the manufacture and sale of electrode holders which did not possess these features, and which features were not intimated or suggested in the prior art electrode holders.

2. The second question is whether or not the Lower Court had the right to determine lack of invention over the prior art electrode holders which prior art electrode holders had features somewhat analogous to those disclosed by the patent claims in issue, but which required material and radical modifications in order to conform to applicant's patent claims and which do not show an equivalent and operative combination which obviously could be substituted to meet the appealed patent claims by any skilled mechanic.

3. The third question is whether or not the Lower Court was justified in holding that the prior art electrode holders disclosed a structure which might by modification be made to accomplish the functions performed by the disclosed electrode holder structure when none of the prior art electrode holder structures were designed by their makers or adapted to be used for performing such functions.

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No. 15,457

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APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

BRIEF FOR PLAINTIFF-APPELLANT

JURISDICTIONAL STATEMENT

This is a suit against the Commissioner of Patents under Title 35, United States Code, Section 145, involving the application of Thomas S. Donnelly, Jr., Serial Number 203,594, filed December 30, 1950, for an electrode holder, which application was rejected by the Patent Office. This matter of jurisdiction is set out in the bill of complaint on pages 2a-6a in the Joint Appendix. The Lower Court entered judgment dismissing the bill of complaint and from this final judgment an appeal was taken to this Court as provided for in Title 28, United States Code, Section 1291.

STATEMENT OF CASE

In the Rejection, the Patent Office set out three prior art patents, but in the Rejection applied only two of the patents to the claims and relied upon only two of the patents upon rejecting the claims. Five claims were involved in the suit before the Lower Court and the Court entered final judgment holding each of the 5 claims anticipated by the teaching of the prior art patents cited by the Patent Office, although holding that the claimed electrode holder structure was novel over the prior art (JA 62a).

The electrode holder in issue is used in arc welding operations and is used for holding the welding rod, or electrode. In welding operations, the workpiece on which the weld is to be performed, is grounded or connected to one side of a welding machine, and the other side of the machine is connected to the electrode holder which is made of electrical conducting material. When the electrode, or welding rod, is brought into contact with the workpiece and suddenly drawn away from it, a spark is obtained and this spark or flame is maintained continuously by retaining the electrode spaced a short distance from the workpiece. The heat of the flame, or the arc, serves to heat the workpiece and at the same time melt the electrode so that the flowing metal from the electrode bonds itself with the flowing metal of the workpiece and thus a weld is effected. The electrode or rod is held in the holder by means of a clamp and when the rod is burned down to within a few inches of the holder, the clamp is released and the old rod is replaced by a new one.

Since the arc is melting steel and iron, tremendous heat is developed at the arc. This heat is radiated to the electrode holder and serves to heat the holder. The holder is also heated by the heat of electrical resistance.

In most holders used, it is customary to terminate the electric cable which connects the welding machine to the metal part of the holder well rearward of the location of the electrode. The metal of which the holder is made, while being electrically conductive, is of much lower conductivity than the copper cable which serves to connect the electrode holder to the welding machine. Consequently, at the holder, the current is forced to travel through a conductor of comparatively low conductivity resulting in considerable heat of resistance. To overcome this heating of the electrode holder, in the present invention, the cable is not terminated rearwardly of the location of the electrode, but is brought up to the exact location of the electrode. To do this, it is necessary that the lower jaw, against which the electrode is clamped, be made hollow to receive the electric cable. When this type of connection is made, the current is forced to travel through metal of lower conductivity than the electric cable only for a distance of 1/8 to 3/16 of an inch. In other types of holders, when the cable is connected rearwardly of the location of the electrode, the current is forced to travel through approximately 4, or 5, or 6 inches of low conductive material. The result effected by bringing the cable up to the location of the electrode is that the holder will operate cool continuously under all conditions. This is especially noticeable when using the larger sized welding rods extending from ¼ to ⅜ of an inch in diameter.

Heretofore various practices were resorted to for effecting the cooling of an electrode holder after welding had proceeded for a predetermined time. Among these were:

1. The use of a whip whereby the holder could be changed by disconnecting the whip from the cable (JA 18a).

2. The use of a stream of water for cooling purposes (JA 19a).
3. The use of a current of air delivered to the holder for cooling purposes (JA 19a).
4. Replacement of the forward or operative end of the holder (JA 15a).
5. Immersion of the holder in a bucket of water periodically (JA 18a, 19a).

None of these practices were satisfactory and particularly the use of the bucket of water as the sudden cooling of the holder in a bucket of water caused the disintegration of the metal and insulating parts (JA 18a, 19a). The use of a flow of water and the use of a flow of air were not satisfactory because of the increased weight added to the holder (JA 19a).

These difficulties or problems in an electrode holder were well known and much effort was made by different manufacturers to overcome the objectionable feature of heat, and the objectionable feature of weight. No attempt at all was made by previous manufacturers to solve the problem of fraying of the cable as it was recognized that there seemed to be no solution for this problem. Some effort was made by the Appellant's company to solve the problem of balance, but the solution was not entirely satisfactory.

In attempting to solve the problem of heat, the Appellant's company, which company was owned by the Appellant and his father, experimented over ten years before arriving at the present invention (JA 40a, 41a). Their first attempt was a modification of the structure shown in plaintiff's exhibit 5 and that shown in plaintiff's exhibit 6 whereby the forward or working end of the holder might be removed and replaced with another. This involved a problem of heat also until a leak proof joint was obtained between the forward end and the rearward end of the holder (JA 15a, 16a). The next move was the development of plaintiff's exhibit 7. Plaintiff's exhibit 7 produced a holder considerably cooler than that of plaintiff's exhibits 5 or 6, but still not cool enough (JA 13a).

The Appellant then developed a screw type holder shown by plaintiff's exhibit 18, and this holder solved the problem of weight as it was much lighter and balanced. The holder was cooler because the cable was brought closer to the location of the rod, but due to the delay in removing and replacing a rod the holder was not satisfactory. The next step was the production of a holder as shown in plaintiff's exhibit 11 whereby the cable was brought within a few inches of the location of a rod. This produced a cooler holder and a lighter holder, but the heat problem still remained to a large degree (JA 13a-16a).

After much experimentation Appellant then arrived at a holder which is shown by plaintiff's exhibit 10 which was a coil spring holder having a chrome-copper jaw. However, with the chrome-copper alloy the heat problem still remained and after experimentation upon other types of holders which did not prove practical, the holder of the present issue such as shown by plaintiff's exhibits 12 and 13 was developed and this holder seemed to answer the problem as to all four difficulties, namely, heat, weight, balance and the fraying of the cable (JA 16a-24a).

With a holder of the type involved in this case, none of the cited prior cooling practices are necessary as the operator may proceed continuously with his welding operation and suffer no ill effects from overheating of the holder (JA 16a, 17a).

By having the cable connected to the jaw at the location of the gripping of the electrode, the current is forced to pass through a very small distance of low conductive metal. This reduces the heat of electric resistance and renders it practically negligible.

By having the passage from the jaw extending from end to end thereof, there is an effect obtained which cannot be obtained with any of the conventional holders or any of the holders of the prior art. The handle which is gripped by the operator is connected to the metal part which is tubular from end to end. This handle serves as a flue. When the cable is inserted through the tubular part of the jaw, it is held in position by presser clips so that there is always clear space from end to end of the jaw and of the metal part of the holder. As the welding proceeds and the jaw becomes heated, air will travel through the handle and through the tubular part of the jaw from the rear to the forward part, thus carrying the heat away and keeping the handle cool and cooling the jaw itself.

Another feature required in an electrode holder of this type is that it be light and the weight reduced to a minimum. With the type of holder involved in this case, the peak of lightness is obtained as the metal part is considerably shortened and is formed hollow from end to end.

The handle of the holder of the present invention, which is gripped by the operator is fastened to the metal part and extends rearwardly thereof, this handle being tubular and this metal extending into the handle. With the conventional type of holder, the metal part of the holder occupies a considerable part of the handle and terminates within the handle a few inches from the end of the handle. In order to connect the cable to the instant holder, the insulation covering the copper wires of the cable is cut away at the end of the cable so that the bare end of the cable may be attached to the metallic part of the holder.

A welding cable is made of a multiplicity of very fine strands of wire and with the conventional type of holder, these strands of wire will break at the rear end of the metal part of the holder due to the flexing of the cable relative to the holder. This breaking of the strands of the cable is avoided in the holder of the type involved in this application. This is due to the fact that the cable is connected to the forward end of the holder and not at the rearward end of the metal part. Consequently, for several inches rearwardly from where the cable is connected to the metal part of the holder, the cable extends through the handle which eliminates the fraying of the same and prevents the breaking of the strands of the cable (JA 22a).

Another feature required in an electrode holder of this class is that it be balanced when in use. That is, it possesses the weight at the forward end which is off-set by the weight at the rear end. With a conventinal type of holder, this is difficult to obtain due to the presence of an excess amount of metal and due to the fact that the cable is fastened to the electrode holder, and the metal part at the rear end thereof. With the holder of the present invention, by bringing the cable up to the front of the holder and making the fastening there, it become possible to obtain an improved balance. This is due to the fact that a larger amount of cable extends forwardly from the handle than with the conventional type of cable (JA 16a, 23a).

The claims involved in this appeal are set out in full in the Joint Appendix on pages 57a-61a. The claims were finally rejected by the Examiner under date of March 4, 1955. An appeal was taken to the Board of Appeals in the Patent Office and the Board of Appeals under date of May 13, 1957 affirmed the Examiner in the final rejection of the claims, and this suit followed.

REFERENCES RELIED UPON BY COURT

Three patents were set out: namely, the patents to Niemann, 1,860,262; Beauregard, 2,455,108; and the British patent, 571,035.

STATUTES INVOLVED

28 U. S. C. Sec. 1291..............................1

> "The courts of appeals shall have jurisdiction of appeals from all final decisions of the district courts of the United States, the District Court for the Territory of Alaska, the United States District Court for the District of the Canal Zone, and the District Court of the Virgin Islands, except where a direct review may be had in the Supreme Court."

35 U. S. C. Sec. 103..............................22

> "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

35 U. S. C. Sec. 145..............................1

> "An applicant dissatisfied with the decision of the Board of Appeals may unless appeal has been taken to the United States Court of Customs and Patent Appeals, have remedy by civil action against the Commissioner in the United States District Court for the District of Columbia if commenced within such time after such decision, not less than sixty days, as the Commissioner appoints. The

> court may adjudge that such applicant is entitled to receive a patent for his invention, as specified in any of his claims involved in the decision of the Board of Appeals, as the facts in the case may appear and such adjudication shall authorize the Commissioner to issue such patent on compliance with the requirements of law. All the expenses of the proceedings shall be paid by the applicant."

STATEMENT OF POINTS

1. The Court erred in failing and refusing and neglecting to hold that claims 24, 26, 45, 46 and 47 defined patentable subject matter patentable over the prior art of record.

2. The Court erred in failing and refusing and neglecting to hold that in view of the prior art it would require more than mechanical skill to construct the invention defined in claims 24, 26, 45, 46 and 47.

3. The Court having held that the claims define novel subject matter, the Court erred in failing and refusing and neglecting to hold that such novel subject matter amounted to invention over the prior art of record.

4. The Court erred in failing and refusing and neglecting to hold the Patent Office Board of Appeals to be in error in failing to adjudicate the subject matter of the claims amounted to invention over the prior art of record.

5. The Court erred in failing and refusing and neglecting to hold that the subject matter of claims 24, 26, 45, 46 and 47 was patentable over the prior art of record and in failing to direct the Commission of Patents to issue a patent.

SUMMARY OF ARGUMENT.

It is therefore respectfully submitted that the Lower Court was in error and should be reversed because:

1. The Court held that it would not amount to invention over the prior art to alter the prior art to meet the structure of the claims, while to do so would require such a modification and changes in the prior art as are not intimated or suggested by the prior art, but can be learned only from the disclosure of the application itself.

2. The Court, in finding that the claimed structure was obvious from the prior art to one skilled in the art, had to go beyond the disclosure of the prior art to arrive at this conclusion and had to ignore the uncontradicted testimony that the prior art did not disclose the claimed structure (JA 25a-41a).

3. There was no foundation of fact in the entire record on which the Court could base its conclusion that mere mechanical skill was required to construct the structure of the claims from the prior art but the foundation of a contrary holding is clearly evident.

4. The Court in concluding that mere mechanical skill was required to construct the claimed structure from the prior art, entirely ignored the law applicable to this case and particularly as set out in the case of In Re Irmscher, 262 F. 2d 85 (C. C. P. A.).

5. The Court erred in failing to recognize that in the claimed structure a new function and a new result was obtained when the entire record is uncontradicted that this is so (JA 62a, 67a).

6. The Court having found that the claimed structure was novel over the prior art, erred in holding the claimed

structure obvious from the prior art without establishing and clearly pointing out the standard of invention which the Court appears to have followed.

ARGUMENT

The claims are not broad claims, but are quite specific to the structure illustrated in the application. In rejecting the claims, the Examiner referred to three patents, none of which constitute an anticipation of the claims by itself, but which were cited by the Examiner as being capable of being modified to meet the terms of the claims. A review of the prior art patents would now seem to be in order.

The art of record consisting of the three patents referred to is such that none of the patents disclose the structure defined by the claims, but the Examiner in finally rejecting the application, and the Board of Appeals in their decision stated that it would not amount to invention to so modify the references of record to produce the structure defined by the claims. It was not pointed out by either the Examiner or the Board of Appeals how such modification of the cited prior art patents could be accomplished.

The Lower Court made a similar holding but again DID NOT POINT OUT HOW SUCH MODIFICATION OF THE PRIOR ART PATENTS COULD BE ACCOMPLISHED. The Court made extensive findings of fact but still did not point out how the prior art patents could be modified.

There is nothing in the prior art to intimate or suggest such a modification. There is nothing in the prior art that would teach how to to construct the device defined by the claims in issue and in order to do so, it would be necessary to resort to the teaching of the application itself (JA 40a). Even referring to the application itself, it would not show how the prior art could be modified to produce a structure meeting the claims in issue.

Beauregard shows an electrode holder used for electric arc welding purposes. He uses a metal tube 3 which is provided at one end with a head or an enlargement 1 in the upper face of which is formed a recess. Secured in this recess and extending upwardly of the head 1 is a jaw 7 which engages the electrode or welding rod. The tube 3 is cut away at the forward end to provide a trough shaped portion which terminates in the solid head 1. This tube 3 extends upwardly into an insulating handle 2 which embraces the member 3 in snug engagement. A welding cable 8a is secured to the rear end of the jaw 7 by means of the screw 23a. The jaw 7 is provided on the surface which engages the electrode with grooves 9, 10 and 11 in which the electrode engages and these grooves are positioned well forwardly of the point of connection of the cable 8a with the jaw 7 (JA 27a, 28a). Neither the Examiner nor the Board of Appeals held that the claims read on the structure listed by Beauregard (pls. Ex. 1). They recognized that claim 24 does not read on Beauregard, but took the position that, by the mere exercise of mechanical skill in view of the other reference to Niemann, a modified construction could be effected (pls. Ex. 1).

Claim 24

Claim 24 calls for an electrode engaging jaw having a flattened upper peripheral surface to engage the electrode and being tubular for reception of an electric cable (JA 26a). Beauregard, of course, does not show the tubular jaw. The British patent shows a jaw which is tubular, but there is no teaching in the British patent to indicate a modification of Beauregard to make his jaw tubular after the teaching of the British patent. Claim 24 further sets out that there is a securing means for connecting the cable 27 to the jaw at the location of the electrode. This securing means comprises a presser clip 30 and the screws 29 which are clearly shown in Fig. 5 of the application. After the cable has been inserted into position, the presser clip 30 is positioned below the cable and is forced upwardly by means of the screws 29 so as to clamp the cable securely to the tubular portion of the jaw at the location of the electrode. NONE OF THE ART OF RECORD DISCLOSES THIS STRUCTURE OR EVEN INTIMATES OR SUGGESTS IT. Claim 24 further sets out there is a pair of arms extending rearwardly from the tubular portion of the jaw which are inserted into the end of a tubular handle 19. These are the arms 39 which are clearly shown in the applicant's drawing, Figs. 7-10. This claim further sets out that there is a connecting member for the arms 39, this connecting member being ring or annulus 41. This structure is not shown in any of the art of record. The Examiner and the Board of Appeals take the position that Niemann discloses a structure which could be used to meet the terms of claim 24 insofar as the spaced apart arms 39 are concerned (pls. Ex. 1). The Niemann structure would have to be considerably altered to provide a pair of spaced apart arms such as called for in claim 24. Niemann does not show this pair of arms but if the Niemann structure were altered to provide a pair of arms, a further alteration would be necessary in order to provide the connecting ring or annulus 41 (JA 29a). Consequently, in the absence of the plaintiff's teaching, there is nothing to suggest such a modification and even with the plaintiff's teaching before them, there is nothing to suggest such a modification as the Examiner and the Board of Appeals conjured up and which the Court adhered to.

Claim 26

Claim 26 is similar to claim 24 except that it calls for the additional connecting member or annulus 34 shown in Fig. 10 of the drawings (JA 29a). The connecting members 34 and 41 serve as a support for the handle 19. Something more than mechanical skill would be required to modify the prior art to meet the terms of either claims 24 or 26. These claims call for a tubular jaw and a tubular jaw is illustrated in the disclosure. Tubular indicates exactly what it says, that it is hollow from end to end. There is no jaw that is hollow from end to end shown in any of the prior art and even the British patent does not show it, as the jaw of the British device is entirely closed by the cable. Each of these claims call for the fastening means 29 and 30 that presses the cable 27 upwardly against the jaw leaving a passage below, the presser member 30 being shown in Fig. 5. By having the jaw tubular, THERE IS THUS PROVIDED A FREE PASSAGE EXTENDING THROUGH THE JAW AROUND THE CABLE 27. This is not present in any of the art of record, including the British patent. By having this space through the jaw around the cable 27, space is provided for the passage of air outwardly of the holder. In operation the jaw will become heated and because of the heating, a flow of air will bet set up and the tubular handle will act as a flue to conduct the air through the handle and outwardly from the handle through the passage which surrounds the cable and extends beneath the presser clip 30. The passage of this air outwardly from this flue-like structure maintains the jaw and the cable in a cool condition and the passage of the air through the handle retains the handle in a cool condition. The result is that no heating up can be effected with a holder constructed in this manner. This is a NEW

RESULT which is obtained. It is a result which has never been obtained by any prior art electrode holder, so far as this record is concerned, which functions as does the holder in issue functions. There has not been a holder disclosed that has a free air passage through a tubular jaw around a cable for passage of air therethrough which is conducted therethrough by the handle operating as a flue. The structure, therefore, is one which produces a new result and functions in an entirely new manner.

Claim 45

Claim 45 is somewhat broader than claims 24 and 26, but is specific to a tubular body (JA 30a). This body is defined as being a handle supporting body. It is also defined as having a passage therethrough from end to end and the forward portion is defined as being flattened as engaging an electrode. None of the art of record shows a handle supporting body which is adapted to engage an electrode and which has a passage formed therethrough from end to end. The body being defined as a handle supporting body presupposes that the handle will be mounted on the body and by having a passage formed therethrough from end to end, the circulation of air due to the flue effect of the handle, will take place and the cooling of the handle and the holder will be accompished. Since none of the art of record discloses this structure, it is obvious that the art of record cannot be said to be an art of anticipation.

Claim 46

Claim 46 is similar to claim 45 and further specifies that the forward portion of the body, at its upper side where the electrode engages, is thicker in cross section than the remaining portion of the body (JA 31a). This provides additional thickness at the location of the electrode, but also serves to retain the welding cable when it is fastened in position centered or concentric relative to the structure. In view of the remarks directed to claim 45, it is obvious that this structure defined by claim 46 is not disclosed by the art of record and clearly distinguishes therefrom (JA 31a, 32a).

Claim 47

Claim 47 is similar to claim 46 with the additional feature that the flat surface is of less width than the diameter of the body. As pointed out in the testimony (JA 32a), prior art holders of the type in issue are generally provided with an insulating cover which covers the jaws. This insulating cover is held on the jaw by means of a screw which is threaded into the jaw and passes through the insulating cover. Since the screw threads into the jaw, it is electrically alive. This is an objectionable feature as the operator during the welding operation may contact this electrically live screw with part of the work or the work table which is connected to the machine, resulting in an electrical short and a consequent flash. When the jaw is constructed as taught by the plaintiff in claim 47, the insulation is removable from the jaw only lengthwise (JA 32a). It cannot be pulled off crosswise of the jaw, and the result is that no screw is required to hold the insulation on the jaw (JA 32a). This feature is not intimated or suggested in any of the art of record and the Rejection of this claim by the Lower Court is completely and entirely baseless. There is nothing at all in the prior art upon which the Rejection of this claim could be founded.

The claim defines a structure which functions entirely different from the prior art and which accomplishes a new and valuable function.

LAW APPLICABLE

It is well established, as set out in the case of *Topliff v. Topliff,* 145 U. S. 157, 36 L. Ed. 658—in which the court said:

> "It is not sufficient to constitute an anticipation that the device relied upon might, by modification, be made to accomplish the function performed by the patent in question, if it were not designed by its maker, nor adapted, nor actually used, for the performance of such functions."

It is submitted that none of the prior art was intended or adapted to perform the function of the present invention.

In determining the question of patentability where the rejection is based upon the modification of the features of the prior art, any question of a doubt as to invention is resolved in favor of the applicant. *Application re Pappas et al.*, 185 F. 2d 695 (C. C. P. A.).

In *Levin v. Coe,* 132 F. 2d 589 (C. A. D. C.) the court said that satisfaction of an old and recognized want is generally recognized as invention. They also stated that the fact that all of the elements entering into a combination are old does not negative the existence of invention. The court went on to state that

> "Such a combination may be patentable invention if it produces a new result or an old result in a new and more efficient manner."

The court also stated that the fact that the combination later

> "appears to be a simple one does not negative a high degree of inventive genius."

In the present invention we have a new function and a new result. The new function is the use of a stream of air flowing through the handle and the hollow jaw for cooling. This was not intimated or suggesed in any of the art of record. We have a new function and a new result in that the cable is so attached and mounted that the fraying of the cable is avoided. Two other features are present, namely, lightness and balance, none of which are suggested by the prior art. Also the insulation may be held on without the use of a screw, if desired.

The court's attention is also called to the case of *Eslie B. Hummer,* 241 F. 2d 742 (C. C. P. A.), *Hoerr v. Watson,* 156 Fed. Supp. 182 (D. C. D. C.) and *Stradar et al. v. Watson,* 244 F. 2d 737 (C. A. D. C.).

The court's attention is also directed to the case of *Carleton v. Watson,* 151 F. Supp. 613 (D. C. D. C.) and the case of *Philip A. Shaffer,* 229 F. 2d 476 (C. C. P. A.).

The court's attention is directed to a very recent decision. In the application of *Hans O. Irmscher,* 262 F. 2d 85 (C. C. P. A.), the Court said:

> "On the other hand, appellant cites authority of this court, * * * and of the Board of Appeals of the Patent Office, * * * to the effect that a basic reference and additional references having features somewhat analogous to those disclosed by appealed claims, which require material and radical modification, in order to conform to appellant's claims, are not valid references unless they show an equivalent and operative combination which obviously could be substituted to meet the appealed claims by any skilled mechanic."

This principle has been followed by this court in *In re Demarche,* 219 F. 2d 952, 42 C. C. P. A. 793, *In Re Shaffer,* 229 F. 2d 476, 43 C. C. P. A. (patents). This was a decision under date of December 19, 1958.

In the case of *Young v. Watson*, 168 F. Supp. 856 D. C. D. C., it was a case brought for the issuance of a patent after rejection by the Patent Office, the court said:

> "The reference patents have been existent for years and under the rule announced by Judge Hand in *Western States Mach. Co. v. S. S. Hepworth Co.*, 2 Cir., 147 F. 2d 345, 348, could have been effectively relied upon to invalidate an application seeking to accomplish a patent on a conflicting article even if such patents had lain dormant throughout their existence. By the same token it would seem reasonable that those engaged in manufacturing involving the sink strainer art should be charged with awareness of the existence of the subject patents and that their manufacture of sink strainers which failed to include the widely accepted improvement contained in the subject patent should be accepted as evidence of unsuccessful efforts to solve the problem solved by the subject patent.
>
> "The three collateral issues having been ruled upon, the Court is brought to a determination of the primary issue. On the basis of the entire record, in the light of the pertinent provisions of the applicable statute and upon consideration of the subject matter as a whole, the Court concludes and finds that the Schultis patent as affected by the Frances patent would not have made the rejected claims of the subject device obvious to one schooled in the sink strainer art.
>
> "The Court is conscious of the great weight to which the opinion of the members of the Board is entitled, and the Court in its decision accords such weight to said opinion. The Court recognizes the Board as a group of highly qualified experts whose decision should not be reversed without conviction on the Court's part that the Board is clearly in error. The Court is likewise conscious of the further fact that the responsibility rests upon the Court in

this type of action to make a judicial determination on the basis of a consideration of all the evidence in the record. This the Court has endeavored to do here. The Court regards as applicable in the instant situation the following excerpt from the opinion of the Circuit Court of Appeals of this Circuit in *L-O-F Glass Fibers Co. v. Watson,* 97 U. S. App. D. C. 69, at pages 74 and 75, 228 F. 2d 40, at page 45:

> 'While there is evidence upon which, in part, the findings can be supported, on the entire evidence we are left with the definite and firm conviction that a mistake has been committed. On the record made and with the exhibits before us, we are permitted a "subjective opinion or formulation of a judgment," which when so credited, makes clear that the "combination and improvement admittedly brought about are the product of creative talent" which lifts the * * * claim to the level of patentability over and above the prior art cited.'
>
> "On the basis of the entire evidence including a careful inspection of the subject claims and device and the claims and devices covered by the references the Court concludes and finds that the Schultis device in combination with the Frances device is so dissimilar in construction and operation to the construction and operation described in and contemplated by claim 11 and the other claims involved in the subject matter that it is clear error to hold that the construction and operation described in claim 11 would be made obvious to one normally schooled in the sink strainer art by the references relied on by defendant."

The situation in this case is quite similar. None of the prior art was intended or adapted to perform the function of the present invention, and none of the prior art could accomplish the result. Since this prior art had been in existence for a considerable period of time, all during the experimentation by the applicant, the conclusion necessarily follows that the present invention was not obvious.

Another case to which the Court's attention is directed, is the case of *Cone v. Watson,* 169 F. Supp. 44. As was said in the case of Irmscher "that a basic reference and additional reference having features somewhat analogous to those disclosed by appealed claims, which require material and radical modification, in order to conform to appellant's claims, are not valid references, etc."

In the present case, the prior art does not show the features of applicant's invention. The only part of the prior art which shows anything approaching the present invention is the British invention which has a hollowed welded jaw to receive the cable. However, this jaw is not a part of a handle supporting member. It does not have a channel formed therethrough for the passage of air therethrough. Being positioned forwardly to the remainder of the holder, the balance is destroyed and therefore, upon the flexing of the cable upon opening of the holder (JA 29a), the fraying of the cable is increased. It is, therefore, submitted that not only does the prior art fail to suggest a modification to meet the terms of the claims in question, but it is also not shown how such a modification can be made. It is not seen how such a modification can be made in the absence of applicant's disclosure. Even following applicant's teaching, the prior art would have to be changed very materially to meet the terms of the claims in issue.

Three of the claims are drawn to the specific formation of the jaw itself by specifying that the thickness as shown by the record, and the formation of the jaw in this manner, makes it possible to mount the insulation on the jaw and retain it in position without the use of screws (JA 32a).

There is nothing in the art of record concerning this at all because the art of record does not relate to an insulated holder.

It will be noted that the Lower Examiner in finally rejecting the claims did not rule on the British patent (Pls. Ex. 4), but relied solely on the patents to Beauregard (Pls. Ex. 2), and Niemann (Pls. Ex. 3), as shown in Exhibit 1, page 47. The Board of Appeals in rejecting the claims did not rely upon the British patent (Pls. Ex. 4). The Board of Appeals referred to the British patent, but did not apply the claims to it and consequently, this British patent did not form a foundation in the rejection of the claims.

In the first action, the Lower Examiner rejected the claims on the British patent (Pls. Ex. 1, page 22). Argument was then made with the Primary Examiner as to the applicability of this British patent (Pls. Ex. 1, pages 26-30). The Examiner in the next action (Pls. Ex. 1, page 42), rejected the claims on the patents to Beauregard (Pls. Ex. 2), and Niemann (Pls. Ex. 3). This would indicate that the Examiner was convinced of the inapplicability of the British patent which should not have been applied as the British patent did not disclose the air cooling. The Board of Appeals likewise rejected the claims solely on the Beauregard and Niemann patents and not on the British patent (Pls. Ex. 4).

The Court relied solely on Title 35 U. S. C., Section 103, and stated in its Memorandum Opinion (JA 62a) that, in view of the prior art, the subject matter as a whole of the claims would appear obvious to one skilled in the art.

The Court admitted that the Appellant had an improved product and, therefore, admitted novelty (JA 62a and JA 67a) but based its holding solely on Title 35, U. S. C., Section 103, namely, that to modify the prior art to construct the subject matter of the claims would be obvious to one skilled in the art. It is not clear what standard of invention the Court employed. As stated in the *Application of Ratti,* 270 F. 2d 810 to 814, C. C. P. A., the Court said:

> "As was pointed out in *In re Stempel, Jr.,* 241 F. 2d 755, 44 CCPA 820, an applicant is entitled to a patent, under the statutes, unless one of the prohibitory provisions of the statutes applies. The statutory requirements for patentability, broadly stated, are novelty, usefulness and unobviousness, as provided in 35 U. S. C., sections 101, 102, and 103. While it is true that proof that an invention *is* better or *does* possess advantages may be persuasive of the existence of any one or all of the foregoing three requirements, and hence be indicative of patentability, Congress has not seen fit to make such proof a prerequisite to patentability."

If one of the three prohibitory provisions of the statute were present, it is believed that the Court should point out which prohibitory provision were applicable.

The Court in its memorandum opinion (JA 62a) stated that the Plaintiff's improved product did not require invention over the prior art. The standard of measurement is not set out and we may, therefore, look to the Findings of Fact to see whether or not this matter has been cleared up. In Findings of Fact 6 and 7 (JA 65a), and Findings of Fact 8 (JA 66a), the Court is following the Board of Appeals' decision concerning claims 24 and 26, and Findings of Fact 7 states that it would be a mere matter of choice and design and would not amount to invention to modify the rear part of the jaw portion of Beauregard so as to provide a pair of longitudinally directed spaced apart arms extending rearwardly, with a connecting member constituting an annulus of the rear ends of the arms. Consequently, in this instance, the Court is using Beauregard alone as a reference on which these two claims 24 and 26 are rejected.

In the absence of the teaching of the application, there is no teaching in Beauregard to indicate the change of Beauregard to which the Court refers and to which reference is made by the Board of Appeals. The entire basis for the holding is that a change of the rear portion of the Beauregard structure would meet the claim, but this is not so. Why, in the absence of the teaching of the application, would it be desirable to modify the rear portion of the Beauregard structure? In each of the claims 24 and 26, it is set out that the forward end of the electrode holder is tubular. Beauregard does not show this tubular construction and consequently, to modify the rear end of Beauregard as determined by the Court in the Findings of Fact 6, 7 and 8, would not change Beauregard so as to meet the terms of the two claims in question. It is necessary that the forward portion of the holder be tubular in order to correspond to the claims. By having the forward portion tubular, a new function and a new result is obtained and this is not intimated or suggested by Beauregard because Beauregard does not have a tubular forward end. This new function is the use of the passage through the forward end of the holder as a conduit for air which serves to cool the forward end of the holder.

In Findings of Fact 15 (JA 67a), the Court held that claims 24 and 26 were unpatentable over Beauregard (Pls. Ex. 2) taken alone or taken with the Niemann patent (Pls. Ex. 3). Again, there is no intimation as to how the references may be modified and combined to meet the terms of the claims in question. There is no teaching in these prior art patents to indicate such a combination or a modification. This is directly contradictory to the teaching of *Hans O. Irmscher*, 262 F. 2d 85, C. C. P. A., in which it was held that in the absence of a disclosure of such a modification, the references could not be combined to constitute an anticipation. In Findings of Fact 16 (JA 67a), the Court merely holds that claims 45, 46, and 47 are unpatentable over the Beauregard patent (Pls. Ex. 2) and the Niemann patent (Pls. Ex. 3), but does not indicate or intimate how such an anticipation is arrived at and how these two references could be modified to anticipate claims 45, 46 and 47.

In Findings of Fact 9, the Court held that the prolongation of the passage of the lower passage of the jaw of Beauregard or Niemann so as to extend therethrough from end to end, is not of a patentable significance, but would occur to one skilled in the art. Such a prolongation of the passage is not taught by either Beauregard or Niemann and in the absence of the teaching of the application, there is nothing to suggest it. There is nothing to suggest the new function and new result which is obtained by the flow of air through the forward portion of the jaw. In the Findings of Fact 9 (JA 66a), the Court stated that this prolongation of the passage through the forward end of the jaw possessed no patentable significance and would be obvious to one skilled in the art although the uncontradicted record shows that for a period of about ten years constant experimentation was carried on before this structure was obtained. Certainly there is nothing in the prior art to indicate the new function and the new result.

In Findings of Fact 10 and 11 (JA 66a), the Court refers to the shape and dimensions of the forward end of the lower jaw portion of the Appellant's structure and conforming to the Board of Appeals holding, held that the structure of the forward end of the jaw involved matter of choice and does not and did not involve invention. The uncontradicted record shows that by forming the forward end of the jaw portion in this manner, the insulation may be slid off longitudinally as set out in Findings of Fact 10 (JA 66a). The uncontradicted record also shows that the insulation piece cannot move outwardly from the jaw except through a longitudinal movement and, therefore, cannot drop off of the jaw (JA 32a). The uncontradicted record shows that if the insulation is held on by means of a screw, the screw is electrically alive and contact of this screw with the workpiece or "live" table supporting the workpiece would create a flash damaging either the holder or the workpiece (JA 32a). Consequently, by forming the forward end of the jaw portion as indicated, it does bring about a new and unobvious result contrary to the holding of the Findings of Fact 12. It makes it possible to mount the insulation on the jaw without the use of a screw. It makes it possible to eliminate the hazard of a flash through contacting the retaining screw with a "live" part. Again, contrary to the Findings of Fact 13 (JA 66a) the plaintiff's particular construction does involve more than what would be obvious to a person skilled in the art. These electrode holders were manufactured for many years and the insulation was always held on by means of a screw which was alive. To eliminate the necessity of the screw, provided a marked advance in electrode construction.

In Findings of Fact 16 (JA 67a), the Court held that of the claims in question, 45, 46 and 47 were unpatentable over the Beauregard patent (Pls. Ex.2) when considered with the Niemann patent (Pls. Ex. 3). Neither Niemann or Beauregard uses an insulated holer. The forward end of their holders is not insulated and since they were not using an insulated holder, there would be nothing in their structure to provide a modification thereof so that their insulation might be held on without the necessity of a screw (JA 32a, 51a, 52a).

In Findings of Fact 17, the Court held that all five claims, 24, 26, 45, 46 and 47 were unpatentable over Beauregard (Pls. Ex. 2), Niemann (Pls. Ex. 3) and Smout, et al. (Pls. Ex. 4). Again, there is nothing to indicate how the defined structure was met by these references. None of the references show a structure which provides for a flow of air through the jaw. None of them are intended or adapted to perform this function, nor can they be modified to perform this function, and the result obtained is not intimated or suggested. For these reasons, it is very respectfully suggested that the Lower Court took the easy way out by blindly following the holding of the Board of Appeals.

The Lower Court based its decision on the Board of Appeals and the Board of Appeals followed the Examiner largely. As the record clearly shows, the Examiner misinterpreted the Beauregard patent (Pls. Ex. 2) (JA 34a, 35a).

Likewise, the Board of Appeals was in error in interpreting this patent. The Board of Appeals states that the rearward portion of the Beauregard construction is perforated and, as a matter of fact, it is not (JA 35a). So that in this regard, the Board of Appeals was in error. While the Board of Appeals did not rely on the British patent to Smout, they stated (JA 36a, 37a) that they did. Furthermore, in discussing the British patent to Smout, they made a misstatement concerning the passage of the cables through the handles (JA 35a, 36a). The Board of Appeals also (JA 37a) in discussing the Beauregard patent (Pls. Ex. 2) stated that the forward end is tubular, when as a matter of fact it is not. Furthermore, the Board of Appeals' discussion of the Beauregard patent was entirely in error (JA 37a, 38a). Likewise, in discussing the Niemann patent (Pls. Ex. 3), the Board of Appeals was in error (JA 39a, 40a) and entirely misinterpreted it.

When the holder constituting the present issue was placed on the market, it was readily received and did not even require selling as the appearance of the holder indicated its characteristics (JA 41a).

In the cross-examination of the witness Donnelly, the defendant is trying to stress the fact that the application as filed did not specifically set out the flow of air through the forward end of the jaw. This is a functioning which takes effect when the invention is being used. In an application all that is necessary is to make a sufficient disclosure so that one skilled in the art may be able to make the structure and practice the invention. Every detail and functioning of the invention is not required to be set out. The structure is shown and from a consideration of the structure, the functioning and operation of the structure becomes evident as the air passage is present in the structure as illustrated.

Respectfully submitted,

ALBERT W. RINEHART,
Counsel for Plaintiff-Appellant,
1311 G Street, N. W.,
Washinton 5, D. C.;

ROBERT G. MENTAG,
Attorney for Plaintiff-Appellant,
3437 Book Tower,
Detroit 26, Michigan.

January 11, 1960.

I, Albert W. Rinehart, do hereby certify that I did on the 11th day of January, 1960, serve a copy of the foregoing Brief on the Attorney for the Defendant-Appellee by personally delivering a copy thereof to Mr. Clarence W. Moore, Solicitor, of the United States Patent Office.

Albert W. Rinehart.

BRIEF AND APPENDIX FOR APPELLEE

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Appeal No. 15,457

THOMAS S. DONNELLY, JR., APPELLANT,

v.

ROBERT C. WATSON, COMMISSIONER OF PATENTS,
APPELLEE

APPEAL FROM THE JUDGMENT OF THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA

BRIEF FOR THE COMMISSIONER OF PATENTS

CLARENCE W. MOORE,
Solicitor, United States Patent Office,
Attorney for Appellee.

DAVID KREIDER,
Of Counsel.

United States Court of Appeals
For the
District of Columbia Circuit

FILED FEB - 3 1960

Joseph W. Stewart

CLERK

APPEAL No. 15,457

STATEMENT OF QUESTION PRESENTED

In the opinion of the appellee, the question presented is:

1. Whether the District Court was clearly wrong in holding, on the evidence before it, that appellant's patent application claims 24, 26, 45, 46 and 47 do not define patentable invention over the disclosures of patents No. 2,455,108 to Beauregard and No. 1,860,262 to Niemann and British Patent No. 571,035 to Smout *et al.*

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United States Court of Appeals
FOR THE DISTRICT OF COLUMBIA CIRCUIT

Appeal No. 15,457

THOMAS S. DONNELLY, JR., APPELLANT,

v.

ROBERT C. WATSON, COMMISSIONER OF PATENTS,
APPELLEE

APPEAL FROM THE JUDGMENT OF THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA

BRIEF FOR THE COMMISSIONER OF PATENTS

INTRODUCTION

The appellant here seeks review of a decision of the United States District Court for the District of Columbia (J.A.[1] 68a) dismissing the complaint (J.A. 2a–6a) in an action under Title 35, United States Code, Section 145 (Act of July 19, 1952, c. 950; 66 Stat. 803). In the action, Thomas S. Donnelly, Jr., the appellant, sought to have the Court authorize the issuance of a patent on his application Serial No. 203,594, filed December 30, 1950, including claims 24, 26, 45, 46, and 47. The allowance of these claims was refused by the District Court, and the Patent Office, by reason of the failure of the claims to define patentable invention over the prior art. There are no other claims in the Donnelly application.

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[1] Joint appendix in separate volume.

COUNTERSTATEMENT OF THE CASE

Because the "Statement of Case" beginning on page 2 of the appellant's brief is incomplete in certain respects, and includes argumentative matter, a counterstatement of the essential facts is considered necessary.

Appellant's application

The subject matter of the application is an electrode holder for use in electric arc welding. The holder comprises a lower jaw member to which an upper-jaw is pivotally attached. The upper jaw is resiliently biased toward the lower jaw so that a metallic welding electrode may be clamped between the two jaws. The lower jaw member, or body 24, which is shown separate from the remainder of the holder in Figures 8, 9, and 10 of appellant's application drawing (Appellee's Appendix[2] 38), includes a forward portion on the upper edge of which a clamping jaw or face 22 is provided for making electrical contact with a welding electrode (not shown). The rear portion of the lower jaw is shown as of skeletonized construction with spaced arms 39 extending rearwardly to an integrally formed annular member 41.

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[2] Appellee's Appendix includes material matter inadvertently omitted from the Joint Appendix. Since this matter includes patent documents and thus requires the larger size pages permitted by Rule 14(a), it was not practicable to add it, as permitted by Rule 16(f), to the Joint Appendix, which was printed on smaller size pages.

Figure 5 of appellant's application drawings (Appellee's Appendix 37) shows, in cross section, the complete holder with an electrical conductor or cable 27 passing through the lower jaw member and having its forward end extending into a bore 25 in the jaw in electrical contact with the underside of the jaw face 22. This Figure shows the complete holder as including an upper jaw 48 pivotally attached to a boss 46 on the lower jaw member with a spring 57 biasing an upper jaw portion 51 toward engagement with the lower jaw face 22. A handle 19 of insulating material is shown in Figures 1 and 5 (Appellee's Appendix 37) as secured to the rear portion of the lower jaw, while an insulating member 31, as shown in Figures 12 or 13 (Appellee's Appendix 38) is disposed about the front or forward portion of the lower jaw.

The claims on appeal

The claims on appeal (J.A. 3a–4a) may be separated into two groups in order to simplify their discussion, the first group including claims 24 and 26 and the second group being made up of claims 45, 46 and 47. Claims 24 and 26 relate to the lower jaw structure of appellant's Figures 8 to 10 (Appellee's Appendix 38), referring to the forward end of the jaw as "being tubular for the reception of a bared end of an electric cable for engaging the jaw at the location of" a flattened upper peripheral surface. They also recite that the jaw includes two spaced arms extending rearwardly and a member connecting the rear ends of these arms. The only element positively recited in claims 24 and 26 which ~~it~~ is not merely part of the unitary jaw member shown in Figures 8 to 10 is the securing means for retaining a cable in engagement with the jaw.

Claims 45, 46, and 47 (J.A. 4a) recite only structure of the lower jaw member shown in Figures 8 to 10 (Appellee's Appendix 38). They define the jaw as a "tubular handle-supporting body having a passage formed therethrough from end to end." These claims refer to the forward portion of the member as "being flat on the upper side of its periphery to provide an electrode engaging surface." Claim 46 adds to claim 45 a recitation that the portion of the body at the location of the "electrode engaging surface" is thicker in cross-section than the remaining portion of the body. Claim 47 includes the further recitation that the flat surface is of less width than the diameter of the forward portion of the body.

The Beauregard patent

Beauregard (Appellee's Appendix ~~55~~ 61) discloses a welding electrode holder, the main portion of which consists of a cylindrical tubular member designated 3 in Figure 2 (Appellee's Appendix ~~55~~ 61). The forward end of this member 3 includes a substantially semicylindrical portion 1 having formed therein a slot-shaped seat into which is inserted a block 7. An electrical conductor 8*a* has its forward end clamped into engagement with this block 7 while its other end (not shown) is adapted for connection to a source of electrical energy for supplying welding current. Grooves 8 and 9 are formed in the flat upper surface of the block 7 to aid in supporting a welding electrode. A tube or casing 2 of insulating material is disposed about the jaw member 3 and is provided with apertures 23 for cooling purposes.

The Niemann patent

Niemann (Appellee's Appendix 55 ~~59~~) shows an electrode holder comprising a main jaw member 1 made up of a forward portion of semicylindrical shape and a rear or handle portion 7. This latter portion, which is hollowed out to form a bore 8 and includes recesses at 15, 16, 17, and 18, receives a cable 22 extending from a source of electrical energy (not shown). At the forward end of the bore 8, a machine bolt 13 and a nut 11, best shown in Figure 5 (Appellee's Appendix 55 ~~59~~), are disposed so that turning of the bolt forces the nut into contact with the bared end of the stranded cable 22 to maintain the cable in contact with the jaw member 1. A sleeve 23 of insulating material surrounds the hollow rear portion 7 and extends past the rear end thereof to serve as a handle.

British patent to Smout et al.

The British patent to Smout *et al.* (Appellee's Appendix 50) also discloses an electrode holder for electric arc welding. The holder, as shown in Figure 1 (Appellee's Appendix 53), includes a gripping jaw b^2 attached by means of a screw c to a hollow leg a^2 "of tubular construction." An electrical conductor e^2 from an electrical energy source passes through the hollow leg a^2 with the end of the conductor extending through a passage between the jaw b^2 and the leg a^2 in electrical contact with the underside of the electrode contacting portion of the jaw. This jaw b^2 is made of a "hard wearing" alloy. The holder of Smout *et al.* also includes a second arm structure comprising a gripping jaw b^1 mounted on another hollow leg a^1.

STATUTE INVOLVED

Title 35, United States Code, Section 103. Conditions for patentability; non-obvious subject matter.

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

SUMMARY OF ARGUMENT

Appellant has the burden of showing that the holding of the District Court that the claims are unpatentable amounted to clear and obvious error.

In the light of all the evidence, the subject matter of claims 24, 26, 45, 46, and 47 as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. This subject matter provides no new or unexpected result on which patentability can be predicated. The evidence adduced by appellant at the trial, including the testimony of his single witness, did not indicate error in the refusal of the claims by the Patent Office tribunals. Also, none of the decisions relied upon by appellant in his brief indicate error in the holdings by the lower tribunals that all the claims on appeal are unpatentable over the prior art.

ARGUMENT

Appellant's burden of proof

In *Abbott et al.* v. *Coe,* 71 App. D.C. 195, 109 F. 2d 449, this Court stated:

> "Although a court, when it agrees with a Patent Office finding often says so, agreement is not necessary to affirmance and disagreement is not sufficient for reversal. The question for us is not whether in our opinion there was invention, but whether the finding that there was none in consistent with the evidence."

The Court further pointed out, "Under the rule settled in this jurisdiction, while we are not absolutely bound by a chancellor's findings of fact, we do not disturb them on appeal unless upon an examination of the evidence they are clearly wrong." The decision in *Standard Oil Development Co.* v. *Marzall,* 86 U.S. App. D.C. 210, 181 F. 2d 280, further indicates that findings of the District Court denying patentability will be set aside on appeal only where they are found to be clearly erroneous. This, of course, is in accord with Rule 52(a), Federal Rules of Civil Procedure. See also *Esso Standard Oil Co.* v. *Sun Oil Co.,* 97 U.S. App. D.C. 154, 229 F. 2d 37; *Bechtold* v. *Watson,* 102 U.S. App. D.C. 353, 253 F. 2d 875. Accordingly, appellant has the burden of proving that there was no rational basis in the evidence before the

District Court for its decision when it agreed with the Patent Office tribunals that claims 24, 26, 45, 46, and 47 are unpatentable.

Claims 24 and 26

In affirming the examiner's rejection of claims 24 and 26 the Board of Appeals (Appellee's Appendix 45) took the view that Beauregard (Appellee's Appendix ~~55~~ 61) discloses "an electrode holder having a jaw 1 with a flattened peripheral surface 9–12 adjacent its forward end for engaging an electrode, said forward end being tubular as broadly recited in claim 24 for the reception of bared end of a cable 8*a;* a securing means 23 for retaining the cable in contact with the jaw, and a longitudinal portion 3 extending rearwardly from the tubular portion for insertion into a tubular handle 2 as recited in this claim." That the District Court agreed with this view is apparent from Finding of Fact No. 6 (J.A. 65a).

Although appellant urges (Br. 12) that Beauregard "does not show the tubular jaw," the pertinent language in claims 24 and 26 (J.A. 3a–4a) is "said forward end being tubular for the reception of a bared end of an electric cable for engaging said jaw at the location of said surface." Certainly the Beauregard jaw structure, made up of portions designated 3, 1 and 7 in Figure 2 (Appellee's Appendix ~~55~~ 61), is tubular from the rear end forwardly to and beyond the portion where the bared end of cable 8*a* engages the block 7 at the location of the screw 23. It is suggested that this construction fully meets the aforementioned recitation of the "forward end being tubular for the reception of a bared end of an electric cable for engaging said jaw at the location of" the surface of the jaw provided for engaging a welding electrode. In this connection, it is further suggested that the reference in claims 24 and 26 to the "location of" the flattened jaw surface for engaging a welding electrode is just as applicable to the "location" in Beauregard (Appellee's Appendix ~~55~~61), where the screw 23 clamps the cable 8*a* in engagement with the jaw portion 7, as to the "location" in appellant's structure (Appellee's Appendix 37), where the end 26 of the cable engages the inner surface of the upper jaw portion 22. It is also submitted that the screw 23 in Figure 2 of Beauregard constitutes "securing means for retaining" the cable 8*a* in "engagement with" the "jaw", as recited in claims 24 and 26 (J.A. 3a–4a). Of course, the fact that this "securing means" in Beauregard is not of the same specific construction shown by appellant is not material since the broad recitation of this element in the claims reads directly on the reference construction.

Moreover, it is respectfully submitted that claims 24 and 26 would not define patentably over Beauregard even if they were interpreted as reciting a jaw construction that is tubular throughout its entire length. In the first place, Figure 5 of the drawings of appellant's application (Appellee's Appendix 37) shows the forward end of the lower jaw almost completely blocked off by the bared end of the conductor 26 and the clamping means 29, 30. Also, the application states (Appellee's Appendix 35) that solder may be poured through openings 61 shown in the jaw in Figure 15 (Appellee's Appendix 37) "in the event that it is desired to also solder in connecting the cable to the jaw." Obviously, such solder would tend to close the front end of the jaw even more against the circulation of air therethrough. As conceded by appellant's witness Donnelly (J.A. 47a), the use of solder as disclosed "might block the entire passage." The application also states (Appellee's Appendix 35) that wall 62 of the alternative insulating cover shown in Figure 13 (Appellee's Appendix 38) "would serve as a closure for the forward end of the bore 25." Such disclosure in the application of constructions which would prevent the circulation of air through the forward end of the jaw, coupled with the fact that the application as filed contains no specific disclosure that air might circulate through the forward end, demonstrate that appellant's argument (Br. 14–15) that circulation of air through the forward end of his construction provides additional cooling effect is not material to the question of patentability. Directly in point is the decision of this Court in *Abbott et al.* v. *Coe,* supra, which held that an alleged advantage not disclosed in an application as filed is not to be given any weight as an indication of patentability. This well established proposition, which is clearly applicable here, is supported by numerous other court decisions including *In re Lundberg,* 45 C.C.P.A. 838, 841; 253 F. 2d 244, 247.

Also pertinent to the recitation of a tubular construction in claims 24 and 26 is Finding of Fact No. 9 (J.A. 66a) to the effect that "prolongation of the passage through the lower jaw member of Beauregard or Neimann so as to extend therethrough from end to end * * * would be obvious to a person having ordinary skill in the art." This matter is discussed more fully hereinafter with respect to claims 45, 46, and 47.

The recitations in claims 24 and 26 (J.A. 3a–4a) relative to the jaw including a pair of arms connected at their ends by a connecting member or annulus likewise are not of patentable significance. The tubular portion 3 of Beauregard (Appellee's Appendix ~~55~~ 61) corresponds to the part of appellant's lower jaw comprising arms 39 and connecting annulus 41 (Appellee's Appendix 38). The District Court, as evidenced by Findings of Fact Nos. 7 and 8 (J.A. 65a–66a), agreed with the Board of Appeals that it would be only a matter of choice or design, and not invention, to provide two or more continuous slots in this rearward portion of Beauregard's lower jaw so as to skeletonize the construction. It is suggested that such modification of Beauregard would be obvious to the worker of ordinary skill in the art as a simple expedient for reducing weight and providing additional cooling effect, particularly since Niemann skeletonizes the rear portion of his jaw construction as shown in Figures 1 and 5 (Appellee's Appendix ~~59~~ 55) and described on page 2, lines 55 to 65 of his specification (Appellee's Appendix ~~62~~ 58). Also, pertinent here is the decision in *In re Wiedman,* 44 CCPA 901, 903; 243 F. 2d 798, 800, which held that the "provision for openings to permit the escape of air * * * from a closure member is obvious, * * * ." It would appear equally obvious that, where a structure is to be held in a worker's hand for relatively long periods of time and is subjected to heating effects during use, portions of the framework which are not necessary to supply mechanical strength could be eliminated to reduce the weight and facilitate cooling by permitting the circulation of air.

A further indication that the District Court is not in error in its view that the recitations of a pair of "longitudinally directed spaced apart arms" with their connecting member, defined in claim 26 as an annulus, do not impart patentability to claims 24 and 26 is found in appellant's application wherein the structure in question is described as follows (Appellee's Appendix 33):

> "Extending rearwardly from the jaw-carrying body 24 are the spaced apart ribs 39 between which is the space 40. These ribs are connected by the annular member 41. If desired, the rear part of this structure may be formed as a tube and slots formed in the tube to provide the ribs 39. If desired, the formation of the slots may be dispensed with as the slots are used for ventilation and also to reduce the weight of the structure."

These statements indicate that the rearward longitudinal portion of the lower jaw of appellant's holder, including the arms 39 and annulus 41 shown in the application drawings (Appellee's Appendix 38), may be formed by slotting an ordinary tubular element, as suggested by the Board of Appeals (Appellee's Appendix 45). The statements further indicate that such slotting may be dispensed with and a rear portion of unslotted tubular form may be used if desired. Appellant's only witness Donnelly, who is the patent attorney who prepared the application (J.A. 9a) and prosecuted it in the Patent Office, conceded that this interpretation of these statements is correct (J.A. 44a–45a). Thus appellant's application indicates equivalency between the skeletonized rear portion of his lower jaw recited in claims 24 and 26 and the corresponding tubular rear jaw portion of prior art such as Beauregard. At most, appellant's application indicates that the claimed skeletonized construction is merely preferred over his alternative construction wherein an unslotted tube, as disclosed in the prior art, is used. It is well established that, under such circumstances, an applicant for a patent is not in a favorable position to argue that the use of one of the two constructions involves invention over the other construction which is disclosed in the prior art. *In re Lindberg,* 39 CCPA 866, 873; 194 F. 2d 732, 736; *In re McKee,* 22 CCPA 1010, 1013; 75 F. 2d 635, 636, (cited with approval in *In re Ruff et al.,* 45 CCPA 1037, 1044–1045; 256 F. 2d 590, 594–595); *Spialter* v. *Marzall,* (D.C., D.C., 1951), 95 F. Supp. 731, 89 USPQ 176. Particularly pertinent is *In re Gardiner,* 36 CCPA 748, 751; 171 F. 2d 313, 316, wherein it is stated:

> "* * *. It is merely pointed out that 'It is *preferred* to make the jet 52 of a diameter no greater than half the diameter of the valve seat 50 * * *.' [Italics ours.] Since those proportions are merely preferred, they cannot be considered as critical. *In re Britton,* 28

that appellant is not entitled to rely on this alleged advantage, which was not disclosed in his application, as an indication that invention was involved.

It is also respectfully submitted that the District Court did not err in its conclusion, in Findings of Fact Nos. 11 and 12 (J.A. 66a), that invention is not involved in the particular shape and dimension of the forward portion of the lower jaw member, aspects of which are defined in claims 45, 46, and 47. Claim 45 (J.A. 4a) merely specifies that such portion is "flat on the upper side of its periphery to provide a flat electrode engaging surface." Certainly this recitation cannot impart patentability to the claim since the upper surface of the block 7 of Beauregard (Appellee's Appendix ~~55~~) 61 and the electrode-engaging surfaces of Niemann (Appellee's Appendix ~~59~~) 53 and Smout *et al.* (Appellee's Appendix 53) are also flat. Although claim 46 adds the recitation that this flat portion is "thicker in cross section that the remaining portion" of the jaw body, it is also apparent that the portion 7 of Beauregard is thicker in cross section than the remaining portion 3 of the jaw body. Additionally, it would appear to be obvious to anyone that this upper surface portion of the lower jaw, which engages the electrodes and thus is subject to wear, may be made of increased thickness in order to increase the length of service it will provide.

Appellant urges (Br. 16) that the jaw shape and dimensions result in it being possible to retain the cover for the forward end of the jaw, designated 31 in Figures 3, 4, 5, and 12 (Appellee's Appendix 37), in place on the jaw without the use of a screw. He points out that a metal screw engaging the metal jaw would be "electrically alive" and hence subject to providing undesirable electrical discharges upon contact with grounded metallic parts. The feature of the construction on which this argument is based is that defined, in claim 47 (J.A. 4a) only, by the recitation that the "flat surface" on the upper side of the forward portion of the jaw is of "less width than the diameter of the forward portion" of the jaw. However, only the jaw body is defined in claim 47, and the claim does not include the insulating cover as an element. Thus, the structure defined in the claim obviously does not provide the result relied upon. Moreover, it seems clear that appellant is here again urging an alleged advantage which is not entitled to any significance because it was not disclosed in his application, *Abbott et al.* v. *Coe, supra; In re Lundberg, supra.* The application states (Appellee's Appendix 33) that the insulating cover 31 "is held in position by means of a screw 38 which threads into the body 24," without making any suggestion that this screw may be omitted.

Allegations of new results

Appellant asserts (Br. 20) that "None of the prior art was intended or adapted to perform the function of the present invention, and none of the prior art could accomplish the result." Such statement is obviously inaccurate. Each of the three references relates to a manually held device for holding electrodes used in electric arc welding. They thus disclose holders which are intended and adapted to perform precisely the same function as appellant's electrode holder. Moreover, the alleged new results or advantages urged by appellant are, at most, mere differences in degree.

One such alleged advantage is advanced by appellant's assertion that his structure provides a cooler holder than was previously available for the reason that the connection of the cable to the lower jaw at the location of the surface for engaging the electrode results in the welding current being required to pass through only a short length of low-conductivity metal (Br. 6). It is suggested that this constitutes no new or unobvious result. In Beauregard (Appellee's Appendix ~~55~~ 61), the block 7 is of copper as indicated in the single claim. The cable 8*a* of this patent is connected directly to the block 7 as shown at 23 in Figure 2. Since this cable obviously would also be of copper, which is highly conductive, the welding current would not be required to pass through any material of low conductivity in passing from the electrical energy source to the electrode engaging surface in Beauregard. That the art is well aware of any advantages resulting from a direct connection of the cable to the electrode-gripping jaw portion in an electrode holder is also apparent from Smout *et al.* (Appellee's Appendix 53). Figure 1 of this patent shows the end of cable e^2 in direct contact with the gripping jaw b^2 and the feature is discussed in the complete specification (Appellee's Appendix 51).

Appellant has contended (Br. 14–15), as previously noted, that air can pass through the handle and forward end of the jaw to provide a cooling effect. Of course, it is well known to provide for air cooling of the handle of an electrode holder, as described on page 2, lines 111–116 of Niemann (Appellee's Appendix ~~62~~ 58). Also, air can pass out of the handle at the opening in element 3 just to the rear of contact block 7 in Beauregard (Appellee's Appendix ~~55~~ 61). So far as the question of passage of air through the forward end of the lower jaw of appellant's holder is concerned, it is pointed out hereinabove that appellant has not specified in his application that air can pass through the front end of the jaw and that the application discloses the use of solder in the jaw and a closure cover on the jaw, which features would effectively prevent such passage of air.

As another alleged advantage, appellant urges (Br. 6) that, with his structure, "the peak of lightness is obtained as the metal part is considerably shortened and is formed hollow from end to end." However, Niemann (Appellee's Appendix ~~59~~ 55) shows the rear portion of the lower jaw skeletonized and it seems obvious that such construction would result in reduction of weight. It additionally would seem that a mechanic, even without any particular reference before him, would find it obvious that the weight of a member could be reduced by skeletonizing it, hollowing it out, or reducing its length.

Appellant also urges (Br. 7) that his construction avoids breaking and fraying of the cable at the point of its connection to the holder. He contends this is "due to the fact that the cable is connected to the forward end of the holder and not to the rearward end of the metal part" whereby "for several inches rearwardly from where the cable is connected to the metal part of the holder, the cable extends through the handle which eliminates the fraying of the same and prevents the breaking of the strands of the cable." Appellant's application as filed (Appellee's Appendix 28) makes no reference to such a feature or advantage. Moreover, it is apparent that each of the three references affords this same protection to the cable as does appellant's device. In Figures 1 and 2 of Beauregard (Appellee's Appendix ~~55~~61), the cable is secured at the forward end of the tubular portion 3 and extends through this portion 3 and the handle 2 or a considerable distance rearwardly from the point of connection. The cable 22 of Niemann (Appellee's Appendix ~~59~~55) is connected to the metal portion 7 a considerable distance forward of the rear end of this portion and extends rearwardly through this portion and the handle 23 for a distance which is obviously adequate to prevent fraying at the connection. Also, this reference discloses the provision of members 20 and 21 for holding the cable against strain at the point of connection to the jaw. The cable e^2 of Smout *et al.* (Appellee's Appendix 53) is prevented by leg a^2 from flexing about its point of connection to the welding jaw.

Appellant additionally contends (Br. 7) that "bringing the cable up to the front of the holder and making the fastening there" in his holder makes it "possible to obtain an improved balance." This contention seems to be but another afterthought since the application as filed does not disclose this alleged advantage or even discuss the matter of balance. It is suggested that the factors which determine the balance of an electrode holder would be obvious to a worker in the art and that such worker would have no difficulty in so selecting the weights and dimensions of the elements as to provide a holder which has the desired balance.

Evidence introduced at the trial

The only witness for the appellant, Thomas S. Donnelly, Jr., was his father Thomas S. Donnelly (J.A. 9a), who prepared and filed the application and was the attorney of record during the prosecution before the Patent Office. The witness apparently is also engaged in a joint business venture with the appellant in connection with the manufacture of electrode holders (J.A. 10a). The portions of the testimony to which appellant mainly refers in his brief relate to a discussion of the history of electrode holders generally and of certain holders made by companies organized by the witness and his son, the appellant. The brief also refers to parts of the testimony relating to the witness' opinion as to the alleged advantages of appellant's construction which have already been discussed at considerable length in this brief. These expressions of opinion of an interested witness obviously did not convince the District Court that patentability was involved.

Appellant argues (Br. 28) "the holder constituting the present issue" was readily received when placed on the market, relying on the testimony of the witness Donnelly (J.A. 41a) in reply to an inquiry as to "what successes have the holders of the present invention had on the market as far as coolness and weight are concerned?" The mere sale of electrode holders involving the jaw element in issue here does not indicate that the construction features of that jaw were the cause of such sales. The witness Donnelly and his son, the appellant, together, have over 26 patents on electrode holders (J.A. 10a), have been making commercial sales of electrode holders since 1940 (J.A. 10a), and, during the war, "were selling over 80 percent of the holders used in the United States" (J.A. 10a). There is nothing to demonstrate that the sale of holders embodying the lower jaw construction in issue was not due to other features of the complete holder covered by other patents taken out by the Donnellys or to their established position in the industry. So far as the record is concerned, the number of holders sold embodying the present jaw construction might even have amounted to a decrease in the rate of sales from the rate at which previous constructions were sold. Of course, it is well established that commercial success cannot be pertinent in any event if it is not shown to be directly attributable to the subject matter set forth in the claims in issue. *Marconi Wireless Telegraph Co. of America* v. *United States,* 320 U.S. 1; *Foxboro Co.* v. *Taylor Instrument Co.,* (C.A. 2, 1946), 157 F. 2d 226; *Miller et al.* v. *Weeks et al.* (D. C., D.C., 1955), 129 F. Supp. 21, affirmed, 97 U.S. App. D.C. 138, 229 F. 2d 21. But what is even more important here, even commercial success which is attributable to the subject matter in issue is signficant only where there is doubt on the question of unpatentability. *Union Metal Manufacturing Co.* v. *Ooms,* 81

U.S. App. D.C. 76, 154 F. 2d 857; *Great Atlantic and Pacific Tea Co.* v. *Supermarket Equipment Corporation,* 340 U.S. 147; *In re Coey et al.,* 38 CCPA 1200, 190 F. 2d 347. Here, neither the Trial Court nor the Patent Office tribunals indicated any doubt that the claims in issue are unpatentable.

Appellant refers (Br. 27) to certain testimony as showing errors in the decision of the Board of Appeals (Appellee's Appendix 41). The immateriality of the appellant's argument in this connection is apparent from the fact that one of the alleged errors is no more than an obvious mistake in referring to a reference character in Smout *et al* (J.A. 55a). The District Court, of course, had these hyper-critical contentions of technical error before it but obviously found them of no significance.

Applicable Law in General

It is respectfully submitted that the District Court correctly dismissed appellant's complaint for the reason that the only changes required in the prior art of record to meet the claims in issue are obvious changes of a minor mechanical nature. In the words of Section 103, Title 35, United States Code, "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." Court decisions holding that patentable invention does not arise where the changes in the prior art involve only mechanical skill or design ingenuity, and thus applicable to this case, include *Fowler et al.* v. *Sponge Products Corporation,* (C.A. 1, 1957), 246 F. 2d 223; *Welsh Manufacturing Co.* v. *Sunware Products Co.,* (C.A. 2, 1956), 236 F. 2d 225; *Smith* v. *Kingsland,* 85 U.S. App. D.C. 284, 178 F. 2d 26; *Marks* v. *Coe,* 79 U.S. App. D.C. 367, 147 F. 2d 159; *In re Nelson,* 40 CCPA 708, 198 F. 2d 837. The well established principle that a mere change in form, proportion or degree does not amount to invention is supported by the decisions in *In re Launder et al.,* 42 CCPA 886, 222 F. 2d 371; *Berkeley Pump Co.* v. *Jacuzzi Bros.,* (C.A. 9, 1954), 214 F. 2d 785; *Pollard* v. *American Phenolic Corp.,* (C.A. 4, 1955), 219 F. 2d 360; *Addressograph-Multigraph Corp.* v. *Cooper et al.,* (C.A. 2, 1946), 156 F. 2d 483.

Appellant cites (Br. 17) *In re Pappas,* 38 CCPA 746, 185 F. 2d 695, apparently as authority for the proposition that doubts as to patentability should be resolved in favor of appellant here. While that decision of the Court of Customs and Patent Appeals may represent the law in direct appeals to that Court under 35 U.S.C. 141, it clearly is not applicable in this Court in connection with actions brought in the District Court for the District of Columbia under 35 U.S.C. 145. As pointed out previously in this brief under the heading "Appellant's Burden of Proof", the findings of the District Court denying patentability will be set aside on appeal only where they are found to be clearly erroneous. *Abbott et al.* v. *Coe, supra; Standard Oil Development Co.* v. *Marzall, supra.*

The other decisions cited by appellant (Br. 17–24) relate to particular cases in which it was found that modifications made in the prior art were not obvious but required the inventive faculty. They do not show that the legal standards applied by the lower tribunals in determining the question of patentability in this case were incorrect. In particular, the decision of the Court of Custom and Patent Appeals in *In re Ratti,* 46 CCPA—270 F. 2d 810, is not believed significant here, because the refusal of the present claims is on the basis of obviousness under Section 103, Title 35, United States Code. It may be noted that the material quoted by appellant from the *Ratti* case (Br. 23) is from the decision of only two of the five judges, with a third judge concurring in the result, while the other two judges dissented. The unanimous decision of the same Court in *In re Henze,* 37 CCPA 1009, 181 F. 2d 196, indicates that the quotation may not represent the view of that Court in so far as it might appear to hold that patentability might exist without any advance being made in the art.

CONCLUSION

For the reasons given, it is submitted that error has not been shown in the decision of the District Court. Its decision in this case should, accordingly, be affirmed.

Respectfully submitted,

Clarence W. Moore,
Solicitor, United States Patent Office,
Attorney for Appellee.

David Kreider,
Of Counsel.

February 1959.

APPELLEE'S APPENDIX

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PETITION

To the Commissioner of Patents:

Your petitioner, Thomas S. Donnelly, Jr., a citizen of the United States and a resident of the City of Detroit, in the County of Wayne and State of Michigan, whose post office address is 15434 Mansfield Avenue in said City, prays that Letters Patent may be granted to him for his improvement in an ELECTRODE HOLDER set forth in the annexed specification; and he hereby appoints Thos. S. Donnelly, of 3437–41 Book Tower, Detroit 26, Michigan, whose registry number is 11433, his attorney, with full powers of substitution and revocation, to prosecute this application, to make all alterations and amendments therein, to sign the drawings, to receive the patent, and to transact all business in the Patent Office connected therewith.

Signed at Detroit, in the County of Wayne and State of Michigan, this 11th day of December 1950.

THOMAS S. DONNELLY, JR.

SPECIFICATION

To all whom it may concern:

Be it known that I, Thomas S. Donnelly, Jr., a citizen of the United States and a resident in the City of Detroit, in the County of Wayne and State of Michigan, have invented a new and useful improvement in an ELECTRODE HOLDER of which the following is a specification:

My invention relates to a new and useful improvement in an electrode holder used in electric arc welding.

It is an object of the present invention to provide an electrode holder which will be light, cool in operation and highly efficient in use.

Another object of the invention is the provision of an electrode holder in which the electric cable may be brought close to the point of engagement of the electrode holder with the electrode which is used therewith.

Another object of the invention is the provision in an electrode holder of a construction in which the electrode, when in use, will overlie the position of engagement of the cable with the electrode holder.

Another object of the invention is the provision in an electrode holder of an engaging jaw which engages the electrode and which is provided for reception and engagement with the electric cable at a position substantially opposite the position of engagement of the electrode therewith.

Another object of the invention is the provision in an electrode holder of insulating means for insulating the electrode holder and comprising a body having a trough-shaped portion struck on an arc and forming in close section a geometrical figure larger than a semi-circle.

Another object of the invention is the provision in an electrode holder of a clamping jaw having a portion of larger transverse dimensions between its upper and lower sides and provided with a covering of insulating material having similar conformation on its inner surface.

Another object of the invention is the provision of an electrode holder having a lower jaw to which the electric cable is connected and tubular so that the cable may be connected at the feed end of the jaw.

Other objects will appear hereinafter.

It is recognized that various modifications and changes may be made in the detail of structure illustrated without departing from the invention and it is intended that such variations and modifications are contemplated and that the present disclosure shall be considered to be but the preferred embodiment.

Forming a part of this application are drawings, in which,

Fig. 1 is a side elevation view of an electrode holder embodying the invention with a part of the handle broken away.

Fig. 2 is a sectional view taken on line 2–2 of Fig. 1,

Fig. 3 is a sectional view taken on line 3–3 of Fig. 1,

Fig. 4 is a front elevational view of the invention,

Fig. 5 is a slightly enlarged fragmentary sectional view taken on line 5–5 of Fig. 4, showing the cable attached,

Fig. 6 is a fragmentary view taken on line 6–6 of Fig. 1,

Fig. 7 is a sectional view taken on line 7–7 of Fig. 1, with parts broken away,

Fig. 8 is a side elevation view of the lower jaw used in the invention,

Fig. 9 is at top plan view of the lower jaw used in the invention,

Fig. 10 is a bottom plan view of the lower jaw used in the invention,

Fig. 11 is an end elevational view of the lower jaw at the rear end taken on line 11–11 of Fig. 8.

Fig. 12 is a prospective view of one form of lower jaw insulation,

Fig. 13 is a prospective view of another form of lower jaw insulation,

Fig. 14 is a fragmentary prospective view of the upper jaw insulation,

Fig. 15 is a sectional view similar to Fig. 3 showing a slight modification.

In the drawings I have illustrated, the invention provided with a tubular handle 19 formed from fiber, plastic or other suitable insulating material. This handle is shown as provided at its forward end with the longitudinally directed slots 20 which serve as a means for ventilating or cooling the rear or shank portion of the lower jaw. Extending rearwardly from the forward end of the handle 19 is a slot 21.

The lower jaw is provided with a clamping portion or face 22 in which are formed the grooves 23 in which an electrode holder may rest when clamped against this lower jaw. The body 24 on which the clamping face 22 is formed is tubular to provide the bore or socket 25 into which the bared end 26 of the Electric cable 27 may be projected. As clearly shown in Fig. 4, the outer surface of this body 24 tapers inwardly as at 26 so that there is an outwardly bulge between the upper and lower sides of this lower jaw. In the form illustrated, the outer surface of the major portion of the body 24 is curved and struck on an arc and the inwardly inclined or curve surface 26 begins at a point above the diameter of the arc. It is to be understood that this particular shape is but one form as the functional characteristics may be obtained in other forms, as will clearly appear from the description which procedes.

Threaded in openings in the lower side 28 of the body 24 are screws 29 which are spaced apart longitudinally of this jaw. These screws are adapted to be threaded inwardly so as to engage the presser clip 30 so as to force this presser clip upwardly and clamp the bared end 26 then cable 27 against the upper portion of the bore 25 so that the cable is thus brought firmly into contact with the lower jaw at that portion which is engaged by the electrode. In an electrode holder jaw, it is desirable to form the jaw from a material of high electrical conductivity but due to the fact that this jaw is subject to excessive wear of various kinds when in use, the jaw is frequently formed from a metal of lower conductivity than the copper cable itself. Consequently, by bringing the cable into engagement with the lower jaw at that portion which is engaged by the electrode, the travel of the current through metal of lower electrical conductivity than the cable itself is shortened. Experience has shown that this results in a more efficient electrode holder in operation and one which operates cooler than where the cable is connected at a distance so as to force the current to travel a considerable distance through a metal of lower electrical conductivity.

The lower jaw is covered with an insulator 31 formed from suitable heat and electrical insulating material. This insulating member 31 is formed trough or channel shaped to provide the side walls 32 and 33. As clearly appears, the space between the side walls 32 and 33 at their free edges is less than the space between these side walls at a point inwardly from the free edges so that the side walls may be said to be turned inwardly at their free edges. When fitted over the body 24, the insulator 31 serves to cover this body except at the upper or jaw end forming portion. Due to the interned edges of the side walls, it is necessary to slip the insulation on from the forward end of the body 24 and in the structure shown, this insulation is slipped on until it engages the Peripheral flange or shoulder 34. As shown in Fig. 13, the insulator 31a is provided at one end with an end wall 35 which serves to close the forward end of the insulator; otherwise, the two insulators are constructed the same. Spaced apart openings 36 and formed in the insulator in registration with the screws 29, which thread into the threaded opening 37 formed in the body 24. Consequently, the screws 29 may be threaded inwardly and outwardly while the insulator is in position, this inwardly and outwardly thread be effected by a suitable tool and effecting a rotation of the screws 29. The insulator is held in position by means of a screw 38 which threads into the body 24.

Extending rearwardly from the jaw-carrying body 24 are the spaced apart ribs 39 between which is the space 40. These ribs are connected by the annular member 41. If desired, the rear part of this structure may be formed as a tube and slots formed in the tube to provide the ribs 39. If desired, the formation of the slots may be dispensed with as the slots are used for ventilation and also to reduce the weight of the structure. Projecting outwardly from the annular member 41 is a stud 42 and threaded openings 43 are formed in opposite sides of the annular member 41 for reception of the screw 44. When the handle 19 is mounted in position, the opening 45 formed in the handle is in registration with the screw 44 and formed of smaller diameter so that by inserting a suitable tool through the opening 45 the screw 44 may be backed out into clamping relation to screw mounting the handle on the annulus 41, this handle preferably snugly embracing the shoulder 34. The lower jaw may be said to comprise a forward or jaw portion and rearwardly portion which may be termed a shank. When the handle is mounted in position it has a bearing on the annulus 41 and also on the shoulder 34 so that tilting of the handle rearwardly to shank or to the jaw forming portion is prevented.

Projecting upwardly from the upper side and jaw forming portion is a lug 46 which is embraced by the spaced apart lugs 47 which are formed on the upper jaw 48 to provide the space 49 for reception of the lug 46. A pivot pin 50 is extended through the lugs 47 and lug 46 to pivotly mount the upper jaw on the lower jaw.

Extending forwardly from the pivot point on the upper jaw is the portion 51 which forms the jaw proper and which is provided on the face opposed to the lower jaw 42 with a longitudinally extending groove 52. This portion 51 serves to press against the electrode which engages the lower jaw face 22 and retain the electrode clamped between the jaws. Projecting outwardly from the gripping portion 53 of the upper jaw is a stud 54 which projects through the base of a cup shape member 55 which telescopes with a cup 56 through which the stud 42 projects. Positioned in these cups is a coil spring 57, one end of which engages the base of cup 55 and the other end of which engages the base of the cup 56. These cups 55 and 56 serve to maintain the spring centering relatively to the studs 42 and 54 and out of contact therewith. By pressing downwardly on the gripping portion 53, the cups are further telescoped and the spring 57 is compressed, the jaw portion 51 withdrawing from the lower jaw portion 22. When the electrode is positioned in the lower jaw and the pressure on the gripping portion 53 is released, the spring will function to clamp the electrode between the two jaws.

A layer 58 of insulating material serves to cover the upper face of jaw 51 and a part of the side thereof. Formed preferably integral with this layer 58 of insulating material at the rear end thereof are the downwardly projecting flanges 59 which overlie the lugs 47 and 46 which prevent longitudinal movement of the pivot pin 50. The gripping portion 53 and the downwardly turned portion 63 of the upper jaw are covered with insulation 64 which may or may not be integral with the insulation 58.

When the handle is slipped into position, the stud 42 will ride in the slot 21 and handle will ride under the lower cup 56.

When the cable is being fastened to the electrode holder the cable is inserted into the position show in Fig. 5, the handle 19 having previously been threaded on to the cable. The presser clip is then subjected to the pressure of the screws 29 so that the cable is firmly pressed against the upper surface of the bore 25. The operator may observe this operation when this connection is made before the insulator 31 or 31a is mounted in position by viewing the cable from the forward end. In this way the operator may determine that a proper connection between the cable and the jaw has been made.

Formed in the insulator 31 are ventilating holes 60. When the insulator 31a is used, there may be formed in the body 24 openings 61 which register with the openings 60 so that these openings 61 may be tell-tale openings through which the operator may observe the cable and ascertain that it has been properly attached. These openings also may serve as inlet openings through which solder my be poured in the event that it is desired to also solder in connecting the cable to the jaw. In this case, the wall 62 of the insulator 31a would serve as a closure for the forward end of the bore 25.

Formed in the handle 19 rearwardly of the annulus 41 are ventilated openings 65.

The slots 20 serve as a means for ventilating the handle and permitting the heat which is generated between the annulus 41 and the shoulder 34 to be dissipated from the handle. It will be noted that the handle is a snug fit around the annulus 41 so that the handle is thus partially blocked to prevent the handle acting as a flue or conducting the heat rearwardly from the forward side of the annulus 41. The ventilated openings 65 being positioned rearwardly of the annulus 41 serve as a means of escape for such heat as may travel rearwardly of the annulus 45 thus affording a cool handle. "By cool handle", I do not mean that all of the heat is dissipated but a sufficient dissipation of the heat is effected to naturally reduce the temperature of the handle over that temperature that it would have were not the structure described adopted. Experience has shown that in normal operation, when the handle is constructed in the manner described and used with the proper side rod, the handle remains sufficiently cool in continuous welding as not to be uncomfortable to a degree that the efficiency of the welding is affected. It is of course understood that electrode holders are built in various sizes developed upon the size of electrodes used and the style of welding resorted to and to obtain the results described, the electrode holder of course should be used within the limits for which it is built. Experience has also shown that by connecting the cable close to the rod, as shown herein, heating of the electrode holder is considerably reduced.

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ORIGINALLY FILED

FIG. 1.

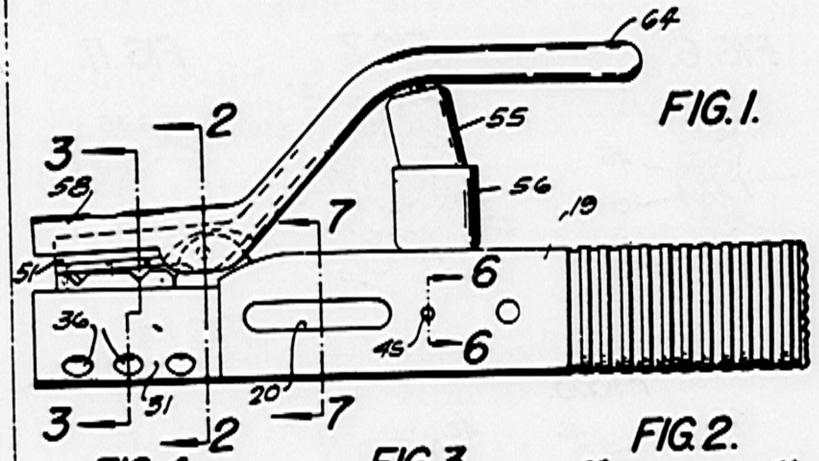


FIG. 4.

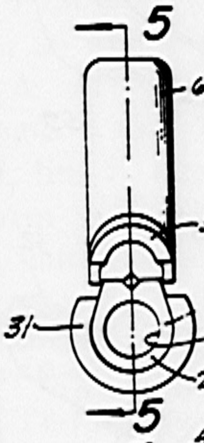


FIG. 3.

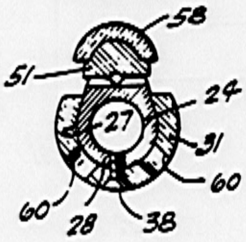


FIG. 2.

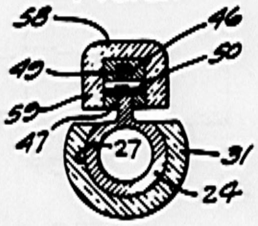


FIG. 5.

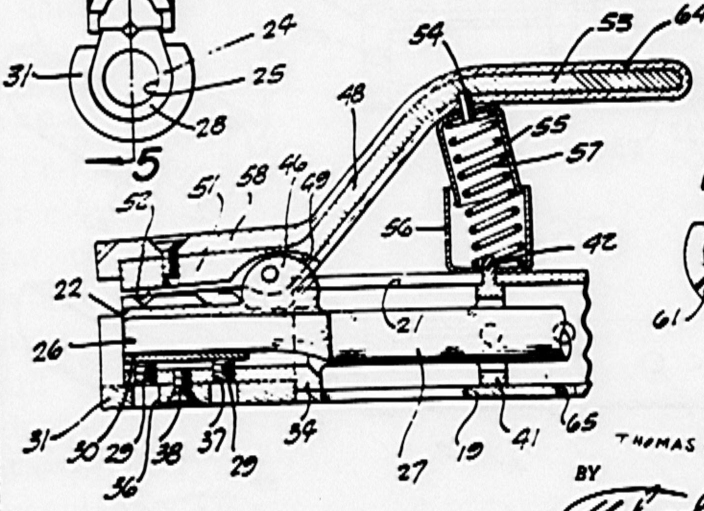
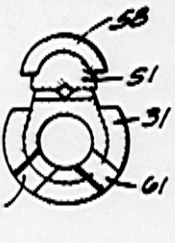


FIG. 15.



INVENTOR.
THOMAS J. DONNELLY, Jr.
BY
T. Donnelly
ATTORNEY.

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FIG. 6.

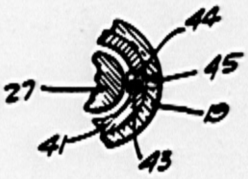


FIG. 7.

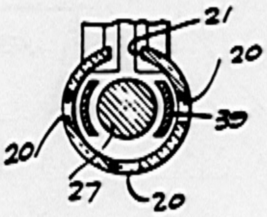


FIG. 11.

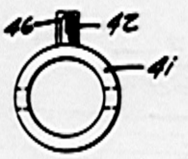


FIG. 14.

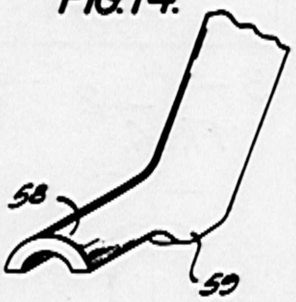


FIG. 8.

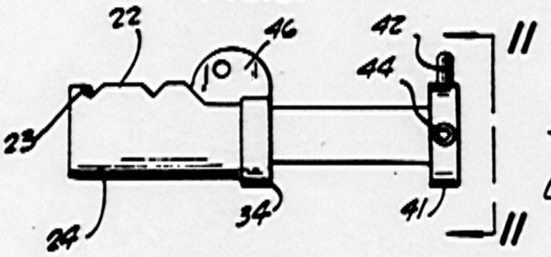


FIG. 9.

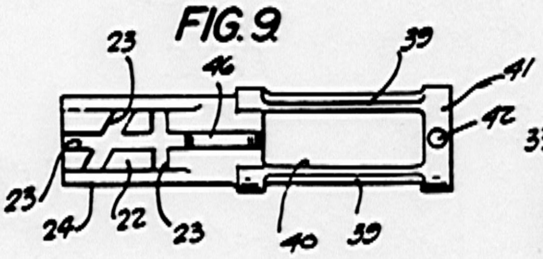


FIG. 12.

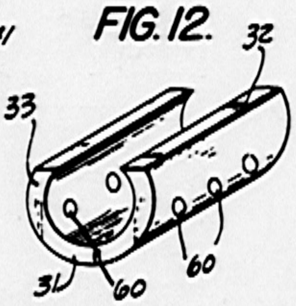


FIG. 10.

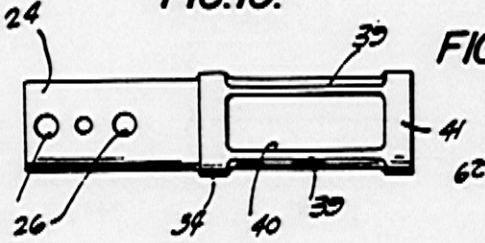
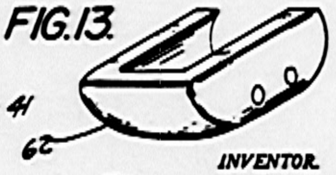


FIG. 13.



INVENTOR
THOMAS S. DONNELLY, Jr

BY

Thos. S. Donnelly
ATTORNEY.

Appeal No. 46,839, Before the Board of Appeals

In re application of Thomas S. Donnelly, Jr., Ser. No. 203,594. Filed December 30, 1950. For Electrode Holder

THOMAS S. DONNELLY, *pro se*

EXAMINER'S ANSWER

Mailed Nov. 30, 1955, Pat. Div. 37.

This is an appeal from the final rejection of claims 24, 26 and 45–47. No claim is allowable.

A correct copy of the appealed claims appear on pages 1 and 2 of applicant's brief except that claim 47, line 3, has been amended by the Examiner to conform with the correction proposed in paper No. 11.

The references of record relied on are:

Niemann	1,860,262	May 24, 1932
Beauregard	2,455,108	Nov. 30, 1948
Smout et al. (Brit.)	571,035	Aug. 2, 1945

The invention in issue relates to an electrode holder for electric arc welding. Figures 2, 8, 9 and 10 show that applicant's device is made up of a skeletonized metal member having at its forward end an outer flattened portion 22 comprising one jaw of the holder, said portion being hollow as indicated at 25 and adapted to receive and make electrical contact with a current carrying conductor 26. Support ears 46 are provided as a pivot for the outer jaw 51 of the holder. Rearwardly from the above mentioned portions is a tubular skeletonized portion 39. A heat insulating handle 19 is positioned circumferentially about said portion 39 and also the rear end portion 41.

The patent to Beauregard discloses a tubular lower jaw having a generally circular lower portion and a separate thickened jaw 7 united to said lower circular portion. The welding cable is shown attached in the tubular portion below and directly to the jaw. The rearwardly extending tubular portion is perforated as is the handle, to permit a cooling ventilation.

Niemann is particularly cited to show a skeletonized rear tubular portion for which see Fig. 5.

The British patent is called to attention because it shows a realistically sized cable located in the jaw and because applicant by his suggested amended claims is attempting to stress the location and extent of the current conductor in relationship to the jaw.

Claims 24 and 26 were rejected as not patentable over Beauregard either alone or taken with Niemann. As is obvious as to claim 24 Beauregard has a forward end which is circular and also partially tubular since a conductor 8 is received therein. The jaw face is separable in Beauregard which permits the jaw to be of highly electrical conductive material whereas the remaining portion may be of low heat conducting material. The rearward portion is hollow and perforated in Beauregard. The degree of skeletonizing of this portion is obviously a matter of preference or choice and in conjunction with the choice of the strength and/or thickness of the insulating handle. See also Niemann, Fig. 5 on a skeletonized rearward portion. Mere removal of structural material could obviously be carried to the point where the insulating handle would only fasten to a stub portion projecting from the lower jaw.

Claims 45–47 were rejected as not patentable over Beauregard alone. As noted before there is obviously considerable advantage in having a separable jaw but in any event unitary and separable parts are generally considered equivalent. Width and thickness of any specific portion is obviously not a matter of patentable invention but merely of preference or choice. No new or inobvious result occurs.

It is noted that the Examiner has considered 47 claims in the course of these Office actions. Consideration of further claims by the Examiner appears to be an imposition.

Since the final rejection appears to be proper, it is respectfully requested that it be affirmed.

MAX L. LEVY,
Examiner, Division 37.

LJLeonnig:cbs.
THOMAS S. DONNELLY,
3437–41 Book Tower,
Detroit 26, Michigan.

Paper No. 22

Appeal No. 468–39. Hearing: March 11, 1957. U.S. Patent Office, Board of Appeals. Mailed May 13, 1957. mnb.

IN THE UNITED STATES PATENT OFFICE

BEFORE THE BOARD OF APPEALS

Ex parte THOMAS S. DONNELLY, Jr.

Application for Patent filed December 30, 1950, Serial No. 203,594. Electrode Holder.

Thomas S. Donnelly for appellant.

This is an appeal from the final rejection of claims 24, 26 and 45 to 47, all the claims in the case.

Claim 24 is reproduced as illustrative:

24. In an electrode holder of the class described, a jaw having a flattened upper peripheral surface

adjacent its forward end for engaging an electrode, said forward end being tubular for the reception of a bared end of an electric cable for engaging said jaw at the location of said surface; securing means for retaining said cable in said engagement with said jaw; a pair of longitudinally directed spaced apart arms extending rearwardly from said tubular portion (adapted for insertion into the end of a tubular handle) and a connecting member for connecting the rear ends of said arms.

The references relied upon are:

Niemann	1,860,262	May 24, 1932
Beauregard	2,455,108	Nov. 30, 1948
Smout et al. (British)	571,035	Aug. 2, 1945

The rejected claims relate to an electrode holder for use in electric welding operations.

Appellant points out that in the welding operation it is conventional practice to connect one terminal of the source of energy to the workpiece and the other terminal of the source of energy to a welding tool. He asserts that one part of the tool which may be referred to as the tongs is made of a metal which is resistant to wear, as for example, a hard wearing alloy but that this material has a relatively high resistance being much greater than the resistivity of the cable connecting the source of energy to the jaw supporting the welding rod. He states that in his device he uses a hollow member to permit him to bring the highly conductive cable up to the location of engagement of the welding rod with the jaw and under these conditions the flow of current through a large body of metal of low electrical conductivity is avoided with the result that a comparatively cool electrode holder is available to the welding operator.

The holder of the instant device consists of a cylindrical portion 24 which terminates in an enlarged shoulder 34 to which is connected a pair of rib members 39 which terminate in a second annular member 41. The forward portion of the tubular member is flattened and has formed thereon angular grooves 23 for engaging the electrode of the welding tool. An insulating member 19 is slipped over the annular members 41, 34 to form a holder which is grasped by the welder in manipulating the tool.

The forward portion of the cylindrical member has a boss 46 formed thereon which serves as a pivot and support for the upper clamp member 48, 51, 64 of the tool.

Claims 24, 26 and 45 to 47 stand rejected as not patentable over Beauregard with reference to Niemann and Smout et al.

Beauregard discloses a welding electrode holder, the major portion of which consists of a cylindrical tubular member 3, the forward end of which has an internal semi-cylindrical member 1 having formed thereon a slot shaped seat into which is inserted a block 7 to which is attached a lead 8*a* which in turn is connected with a source of electrical energy. Grooves 8 and 9 are formed in block 7 for the purpose of supporting a welding electrode and the surface of the tubular member 3 is covered by insulating material 2 which serves as a grip for the holder. Apertures 23 are formed in the holder for ventilation.

Niemann discloses an electrode holder comprising a forward solid semi-cylindrical shaped member 1, the back end of which is hollowed out and formed with a series of openings 8, 16, 19 for the purpose of receiving a stranded cable 22 attached to a source of electrical energy. The forward end of the aperture contains a machine bolt 13 to which is attached a nut 11 which on tightening on the machine bolt jams the nut in contact with the stranded cable within the opening

8 of the holder. A grip 23 of insulating material surrounds the hollow portion of the holder. A boss on the forward end of member 1 serves as a pivot and support for an upper clamp member 2.

Smout et al. disclose an electrode holder for electric arc welding comprising tong members *f*¹–*f*² made of a hard wearing alloy and to which are attached by bolts *c* a pair of highly conductive clamping blocks *b*¹–*b*² for gripping electrode *d*. The cables connecting the source of energy to the welding member pass through the hollow jaws *f*¹–*f*² and as shown in Fig. 1 through the blocks *b*¹–*b*² to the ends thereof. Smout et al. state that the cables are connected directly to the highly conductive blocks *b*¹–*b*² to obtain perfect conductivity and minimum heating of the holder.

In the rejection the examiner takes the position that it would be uninventive to modify the structure of Beauregard in view of the secondary references to meet the terms of the claims.

Appellant challenges the rejection alleging that Beauregard does not show either a flattened upper peripheral surface for engaging electrodes or a portion which engages the electrodes made in tubular form. He asserts that the instant claims specifically recite the forward end of the metal body as being tubular which provides for radiating purposes whereby the heat which is transmitted to the metallic body may be radiated forwardly of the holder. He also asserts that claims 24 and 26 further set out a pair of spaced arms which are connected at their ends by an annulus which serves as a bearing for the handle which feature is shown by none of the references.

With respect to claims 45 to 47 he takes the position that the handle supporting body recited in the claims requires an opening from end to end which is not shown in Beauregard who therefore cannot obtain the advantage of coolness and heat radiation from the forward end of the holder which is obtainable from the instant device. It is contended by appellant that the forward portion of the instant device is flattened on its upper periphery which feature is not present in Beauregard. He states that claim 46 recites the electrode engaging surface as being thinner than the remainder of the tubular body which provides that the part of the jaw which is subject to greater wear will have a greater amount of metal to resist such wear.

We have reviewed the claims and references in the light of appellant's remarks and as a result of our review are in accord with the position of the examiner.

Beauregard for example, discloses an electrode holder having a jaw 1 with a flattened upper peripheral surface 9–12 adjacent its forward end for engaging an electrode, said forward end being tubular as broadly recited in claim 24 for the reception of bared end of a cable 8*a*; a securing means 23 for retaining the cable in contact with the jaw, and a longitudinal portion 3 extending rearwardly from the tubular portion for insertion into a tubular handle 2 as recited in this claim.

This reference does not disclose a pair of arms connected at their ends as recited in this claim. However, it would involve only choice or design to place two or more continuous slots in the rearward portion of Beauregard's members 2–3 by connecting the apertures 23 since this modification changes neither the function nor results obtainable from the reference device. With this modification the parts of members 2–3 of the reference between the rows of apertures 23 will form arms and the material on the holder to the rear of the apertures will be a connecting member.

Claim 26 which differs from claim 24 by adding to the structure of the latter claim an annulus at the forward end of the arms, in our opinion, does not patentably distinguish from Beauregard since the part of member 3 of this reference just forward of apertures forms an annulus insertable into the forward end of handle 2 for engaging the inner surface thereof as recited in this claim.

Accordingly, we will sustain the rejection of claims 24 and 26.

Claims 45 to 47 which stand rejected on Beauregard as a basic reference could, in our opinion, equally well have been rejected on Niemann since the presence or absence of a passage completely through a tubular body in our opinion lacks patentable significance and the dimensions of the electrode engaging surface involves only choice or design in the absence of evidence that particular shapes and dimensions of the tubular body produce new and unobvious results.

However, we are in accord with the position of the examiner since member 7 of Beauregard has a flat face at the upper side of its periphery as well as being thicker in cross-section than the tubular portion 3 of the body.

As stated above no patentable significance is attached to the inclusion in these claims of a passage extending from end to end of the tubular member. The asserted purpose of this limitation is to permit the end of the cable connecting the electrode holder to the source of electric energy to be drawn up flush with the end of the holder and in this manner (1) make the passage of electric current from the cable to the holder through the relatively high resistance holder as short as possible and (2) permit the cable to radiate heat directly to the atmosphere instead of through the holder. In short, the I^2r loss in the holder is made as small as possible and the best radiator is placed directly in contact with the air.

This arrangement and its advantages however is based on the assumption (1) that the holder and cable are made of materials having different resistivity, (2) different dimensions, and (3) are operated under heavy load conditions.

In the first place none of these factors are included in the claims and therefore cannot be the basis of a patentable distinction. As a matter of fact the claims are so drawn that the claimed device may produce the worst possible results, for example, the stranded cable may be a high resistance conductor too small in diameter to carry the current while the tubular member is an oversized good conductor of both heat and electricity. Under these conditions the claimed structure would be under conditions most favorable to appellant no better than the reference structure.

Furthermore, assuming arguendo that the limitations were included in the claims they would in our opinion involve only design considerations based on knowledge of the skill of the art. One skilled in the art would be cognizant of the basic relationship involving the resistance of a material, the heating effect of an electric current and the factors causing an increase in temperature. Specifically, this person would know that the resistance of a material was equal to its resistance per unit volume (resistivity) multiplied by its length and divided by its area; that the heating value of the current was equal to the square of the current multiplied by the resistance of the element through which the current flowed; and that the temperature of a member in an electric circuit would depend on the heating value of the current minus the heat lost by radiation, conduction and convection multiplied by the specific heat of the material. By juggling these factors one skilled in the art starting out with a specified operating temperature for the welding tool could obtain this result by use of a holder having a certain resistivity and by adjusting the ratio of the length of current path to area conducting current and radiating heat to obtain the desired result in a device such as shown by Niemann, or starting out with a permissible temperature used in the welding tool he could join parts having different resistivities, lengths of current paths and areas of conductive paths as shown for example by Smout et al. to obtain the desired result; or he could obtain the desired result by using a relatively small holder of a known value of resistance and work on the cooling means, as for example, by the use of water cooling to achieve the desired result. In any event the use of any one or a combination of the above mentioned design procedures in the absence of a showing of a new and unobvious result as in the present case involves only the skill of the routine designer rather than the exercise of the inventive talent.

Accordingly, we will sustain the rejection of this group of claims.

Appellant has proposed in his brief to amend or rewrite some of the claims and to have us consider and initially pass on the patentability of new claims. It is not our custom to consider claims not previously considered by the examiner and we see no reason for deviating from our customary practice in this case.

Accordingly, we will not consider either the amended or new claims submitted in the brief.

We have carefully considered the contentions and arguments presented in appellant's brief as well as those presented at the hearing but we are of the opinion that the examiner's rejection was proper and it will be sustained.

The decision of the examiner is affirmed.

Mark Taylor,
Examiner-in-Chief,
J. E. Keely,
Examiner-in-Chief (Acting),
James L. Brewrink,
Examiner-in-Chief, (Acting),
Board of appeals.

May 13, 1957.

Thomas S. Donnelly,
3437–41 Book Tower,
Detroit 26, Michigan.

Excerpt from transcript of record during trial had April 13, 1959.

(Page 88 of Transcript.)

* * * * *

Q. Mr. Donnelly, I hand you Plaintiff's Exhibit No. 28 for identification and ask you if you can identify that exhibit?

(Page 89 of Transcript.)

A. It is a letter from the Metal and Thermit Corporation, reporting on a test of a holder which we submitted to them, the holder embodying the structure of the holder in issue.

Mr. Kreider. Your Honor, this proposed exhibit appears to amount to hearsay, and I object.

The Court. I sustain the objection. You cannot put in evidence in this case letters you received from other people stating their view as to what this invention is or how good it is.

* * * * *

PATENT SPECIFICATION

Application Date: Jan. 20, 1944. *No. 1138/44.* **571,035**

Complete Specification Accepted: Aug. 2, 1945.

COMPLETE SPECIFICATION

Improvements in and relating to Electrode Holders for Electric Welding

We, Donald Trentham Smout and Donald Dupree Smout, both of 1, Oakdene Avenue, Darlington, Co. Durham, both British subjects, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to an improved electrode holder for electric welding, more particularly electric arc welding.

In electric arc welding use is made of an electrode holder attached to the end of the welding cable and gripping the welding rod or electrode at the extremity of which a welding arc can be maintained until the electrode has been fused or consumed. Electrode holders for electric arc welding as hitherto constructed consist of a device in the form of tongs mainly made of metal of high electric conductivity and provided with jaws arranged to grip the electrode and with hand grips for opening and closing the jaws, provision being also made for electrical connection to the welding cable at a point remote from the jaws.

In all such electrode holders, the electric current passes through a substantially large portion of the metal of which the entire appliance is made, thus providing a sufficiently large mass of high conductivity forming a conducting path of sufficiently low resistance to prevent excessive heating; at the same time, in view of the metal used, the holder is made of sufficient mechanical strength.

In all electrode holders the jaws are subject to wear which, when excessive, impairs the efficiency of the electrode holder, with the result that the grip on the electrode becomes imperfect and the holder is excessively heated. In order to lengthen the life of the holder it has been proposed to provide the latter with removable jaws so that they can easily be replaced by new ones when it becomes necessary to do so. Quite apart from the increased cost of manufacture, constructions of this character as hitherto proposed are generally less efficient electrically, since the electrical connection between the renewable jaws and the main body of the holder has a higher electrical resistance than in holders in which the jaws are not renewable.

The invention consists in an electrode holder for electric welding, more particularly electric arc welding, provided with renewable gripping jaws adapted to be connected direct to the welding cable, the said jaws being attached in a readily removable manner to a device by which they are opened and closed and which, owing to the said direct connection of the jaws to the welding cable, does not itself contain any metal path carrying the welding current.

The jaws opening and closing device is preferably in the form of a pair of tongs with tubular legs through one leg of which passes the welding cable connected to the gripping jaws, whilst the other leg accommodates a spring by which the firm grip of the jaws on the electrode is ensured.

The invention also consists in the constructions of electrode holder hereinafter more particularly described by way of example with reference to the accompanying drawings, in which:—

Figures 1, 2 and 3 are a front elevation, a side elevation and a plan view respectively of the improved electrode holder: and

Figures 4 and 5 are a front view and a side elevation of a modification.

Referring to the construction illustrated in Figures 1—3, the tongs, which are designed for strength and lightness, comprise two hollow legs a, a_1 of tubular construction to the extremities of which the two renewable gripping jaws b_1, b_2 are removably attached by means of screws c. The jaws are preferably made of a high conductivity hard wearing alloy and one of them, viz. b_2, is slotted as shown at k, k_1, k_2, and k_3 to give a three-point rigid grip on the electrode d. Owing to the particular slotting shown across the face of the jaw b_2 the gripping may be effected in any desired direction. The jaw b_2 is made of substantially rectangular cross section, whilst the jaw b_1 is made of substantially triangular cross section. In order to reduce accidental arcing on the tongs to a minimum the jaws are preferably provided

[*Price* 1/-]

with flanges l covering the edges of the legs a_1 a_2.

e is the welding cable which is housed in the deg a_2 with a relatively long length of rubber covering to reduce the risk of the conductor becoming bare at the point of entry. Three bare conductor strands e_1 e_2 and e_3 of the welding cable are connected directly to the gripping jaws so that no current flows through the legs of the tongs or any other part thereof, the passage of electric current being limited to the path: welding cable, gripping jaws, electrode, whereby perfect conductivity and minimum heating are ensured.

The portions of the legs remote from the gripping jaws and intended to be gripped in the hand are enclosed in tubular grips f_1 f_2 made of fibre or other suitable insulating material. A rectangular shield g of insulating material enables the holder to be laid down on the work without any danger of short circuiting the welding plant or of arcing.

The firm grip of the jaws on the electrode is ensured by means of a readily renewable compression spring h accommodated in the tubular leg a_1 in which it is totally enclosed remote from the welding current and the heat engendered. Its tension can be readily varied by means of an adjustment screw bolt i to suit any required grip. A light tension will suffice for small electrodes and hence with the tension slackened the holder is most suitable for use by female operators of light hand grip. For larger sizes of electrode the tension can be adjusted up to a maximum to hold it with a powerful grip so as to ensure good contact and minimum heating. A preferably ball shaped abutment m is screwthreaded on the screw bolt i against which an arm n secured to the leg a_2 of the tongs is caused to press when the tongs are opened to receive the electrode and put the compression spring h under tension; during this movement the leg a_2 is caused to pivot on a pivot o which is provided on the bracket p attached to the leg a_1.

Referring to the modification illustrated in Figures 4 and 5, the jaw b_2 is provided at its upper end with a backwardly extending projection B_2, whilst the jaw b_1 is provided at its upper end with a forwardly extending projection B_1 by means of which the electrode d is gripped in position at right angles to the positions provided for by the slots k on the front surface of the jaw b_2. For this purpose a slot k_1 is provided on the projection B_2 as a continuation of the slot k, on the face of the jaw.

The details for carrying the invention into effect may be modified in various other respects without in any way departing from the scope of the invention.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. An electrode holder for electric welding, more particularly electric arc welding, provided with renewable gripping jaws adapted to be connected direct to the welding cable, the said jaws being attached in a readily removable manner to a device by which they are opened and closed and which, owing to the said direct connection of the jaws to the welding cable, does not itself contain any metal path carrying the welding current.

2. An electrode holder as claimed in Claim 1, in which the jaws opening and closing device is in the form of a pair of tongs.

3. An electrode holder as claimed in Claim 1 or 2, in which the welding cable is led in an insulated manner through a leg of the jaws opening and closing device.

4. An electrode as claimed in Claims 2 and 3, in which the grip of the jaws on the electrode is maintained by a spring accommodated in the other leg of the tongs.

5. An electrode holder as claimed in Claim 4, in which the tension of the spring is made adjustable for the purpose set forth.

6. An electrode holder as claimed in Claim 3, in which the welding cable comprises a number of separate conducting strands to be connected to one pole of the source of current and attached directly to the gripping jaws, some to one of them and the remainder to the other one.

7. An electrode holder for electric welding as claimed in any of the preceding claims, in which one of the jaws is made of substantially triangular cross section and the other jaw of substantially rectangular cross section.

8. An electrode holder for electric welding as claimed in Claim 7, in which the jaw of substantially rectangular cross section is provided with a plurality of slots adapted to receive the electrode and to be gripped therein by the jaw of substantially triangular cross section in different positions and any desired angles.

9. An electrode holder as claimed in Claim 7, or 8, in which the jaw of substantially triangular cross section is provided at the top with a forwardly extending projection and the jaw of substantially rectangular cross section is provided with a backwardly extending projection having a recess for the reception of the electrode into which it is pressed by the said forwardly extending projection on the jaw of

substantially triangular section.

10. The improved electrode holders for electric welding, more particularly electric arc welding, substantially as described with reference to the accompanying drawings.

Dated this 20th day of January, 1944.

MARKS & CLERK.

Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1945.

[This Drawing is a reproduction of the Original on a reduced scale.]

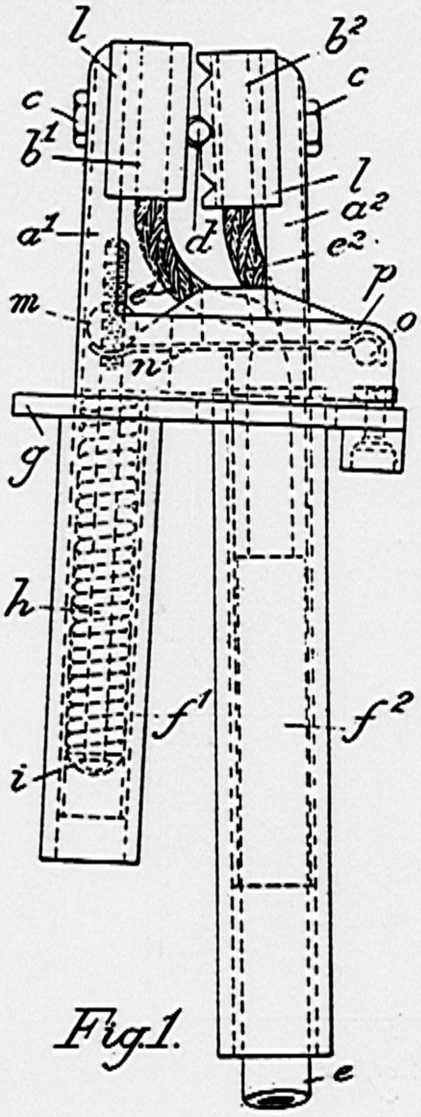


Fig.1.

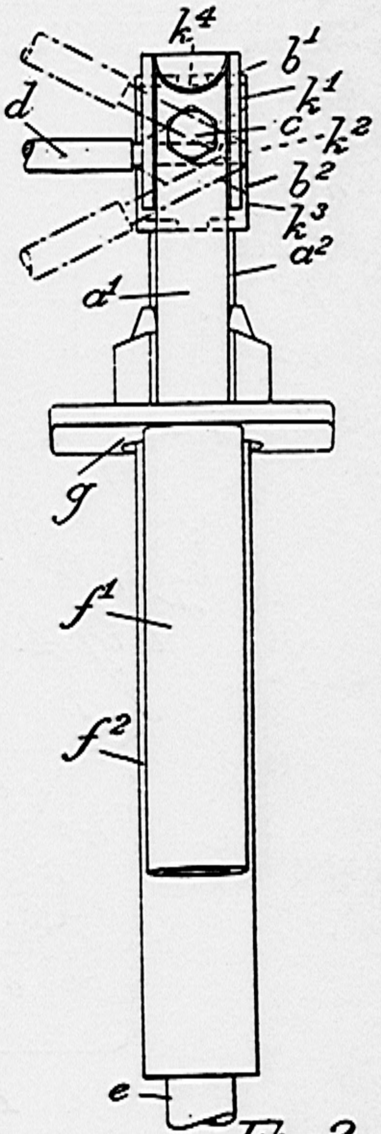


Fig.2.

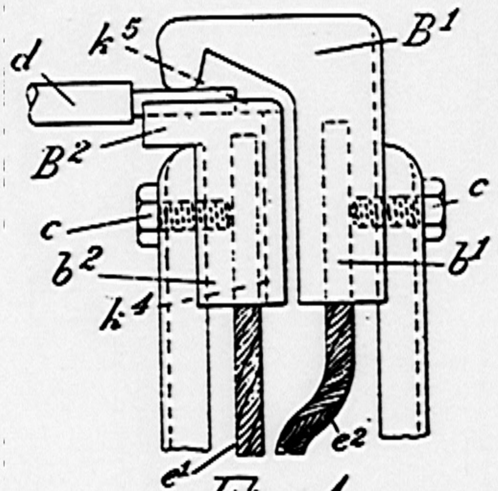


Fig. 4.

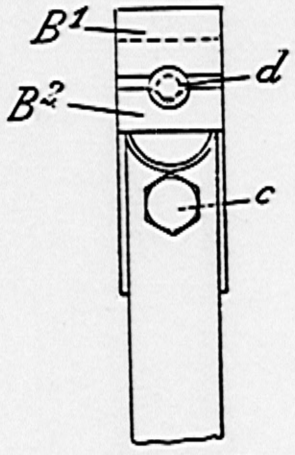


Fig. 5.

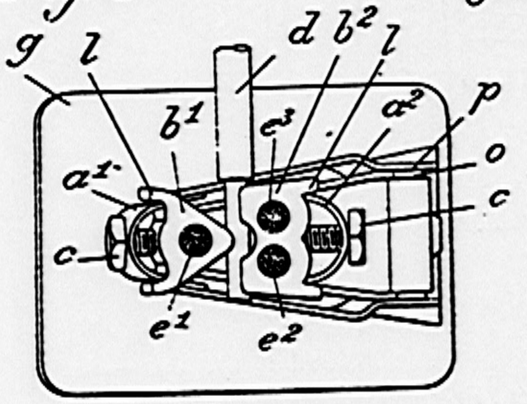


Fig. 3.

May 24, 1932. J. L. NIEMANN **1,860,262**

ELECTRODE ELECTRIC WELDING DEVICE

Filed Aug. 5, 1931

Fig. 1.

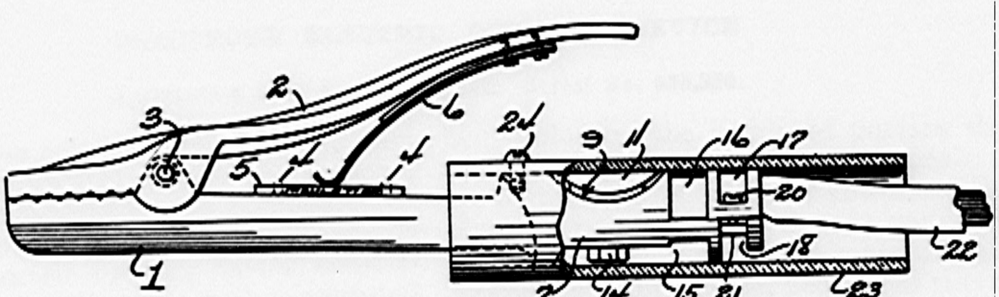


Fig. 2.

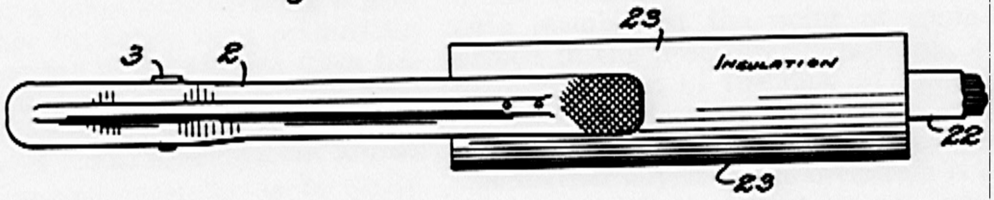


Fig. 3.

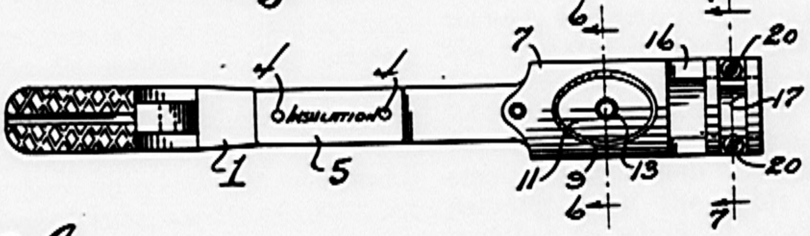


Fig. 4.

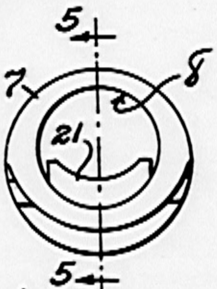


Fig. 5.

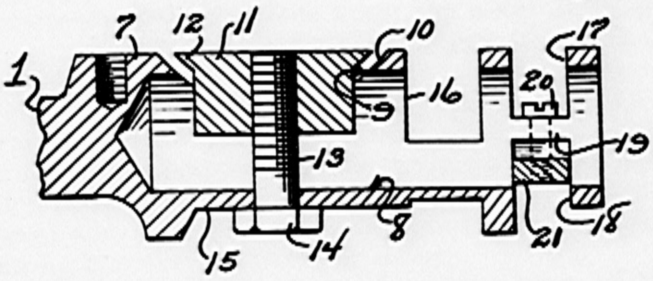


Fig. 6.

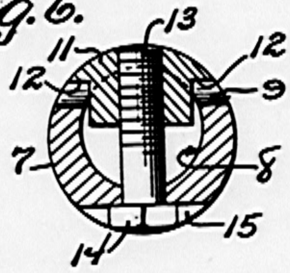
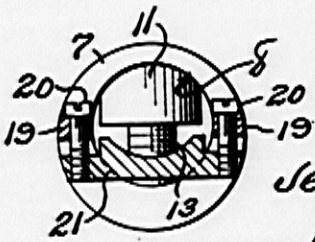


Fig. 7.



Jesse L. Niemann
INVENTOR

BY Victor J. Evans
and Co. ATTORNEY

Patented May 24, 1932 **1,860,262**

UNITED STATES PATENT OFFICE

JESSE L. NIEMANN, OF COLUMBUS, OHIO

ELECTRODE ELECTRIC WELDING DEVICE

Application filed August 5, 1931. Serial No. 555,355.

This invention relates to an electrode electric welding device and consists in the novel features herein described and claimed.

An object of the invention is to provide an electrode electric welding device, consisting of one main member on which is mounted one movable member, operating over a fulcrum with flanges on both sides thereof and held in place by a pivot thus forming a jaw, easily removable by hand, thus permitting the movable member to be released from the main member, without the use of any tool, should it or the jaw thus formed become foul, worn or damaged. The arrangement allows a used or new movable member to be easily substituted upon said main member whenever necessary. Said movable member at the end gripped by the hand of the operator having a group of three semi-elliptical leaf springs attached thereto by means of two screws. All of said springs are seated upon an elevated block base, the longest thereof bearing upon an insulating plate resting upon the main member, held in place by two small metal studs elevated from said main member and the pressure from said group of semi-elliptical springs, to the end that electric current will not destroy or weaken the tension of said springs.

A further object of the invention is to provide a means for securely and effectively connecting the uninsulated end of a multiple wire extra flexible electric cable to the main member by means of a bore, a threaded bolt, and a nut, so constructed that when said nut is drawn into the bore through an opening by means of the threaded bolt it mashes the uninsulated wire into a mass in the bore and around said nut until said wires become firmly a part of the main member, thus permitting an uninterrupted flow of electricity from the cable through said main member into the electrode held in place upon the main member by the movable member or jaw to the point of welding contact.

A further object of the invention is to provide a separate support to said cable and its connection to said main member and strengthen said electrical connection by firmly attaching all of said cable to said main member, including the insulated portion thereof by binding it into the bore of said main member by means of a cross bar and block held in place by two screws so that in handling the tool the insulated electrical cable will always follow the main member because of this method of attachment. This support to said main member will not permit strain or loosening of the uninsulated wire in the bore of said main member at the point of contact described in the preceding paragraph, so that no interruption of the flow of electric current from cable to main member can occur and on to the electrode and point of welding.

A further object of the invention is to provide means for supporting an insulating sleeve or hand hold upon the main member, where the multiple wire electric cable is attached, for gripping said tool in the hand of the operator in such a manner that the said sleeve or interior of the hand hold is ventilated, thereby providing means for its air-cooling, thus shielding the operator from excessive heat when the electrical current is passing from the cable through the main member to which it is attached and to the welding point, or heat from the electrode held in place upon the main member by the removable member or jaw when the device is in operation.

In the accompanying drawings:—

Figure 1 is a side elevational view of the electrode electric welding device with parts broken away and parts shown in sections.

Figure 2 is a top plan view of the electrode electric welding device.

Figure 3 is a top plan view of the main member of the electrode electric welding device and the handle portion thereof.

Figure 4 is an end view of the same.

Figure 5 is a fragmentary longitudinal sectional view of the same cut on the line 5—5 of Figure 4.

Figure 6 is a transverse sectional view of the same cut on the line 6—6 of Figure 3.

Figure 7 is a transverse sectional view of the same cut on the line 7—7 of Figure 3.

As illustrated in the accompanying drawings, the electrode electric welding device comprises a main member 1 and an upper movable member 2, pivotally connected together by means of a removable pin 3 working over a fulcrum and held in place by flanges, so as to form a jaw for the purpose of holding an electrode and so constructed that the two members may be easily separated when desired. The main member 1 is provided upon its inner side with a pair of upstanding studs 4 upon which is mounted a plate 5 of insulating material. This insulating plate 5 is held in place upon said studs 4 by the tension from a group of semi-elliptical springs attached to said movable member 2. This plate 5 may be easily removed from main member 1 and said studs 4 when pin 3 is withdrawn for the purpose of removing movable member 2.

A group of semi-elliptical leaf springs 6 is attached by two screws to said movable member 2 at the end used for the hand of the operator. It is the inner-most of this group of springs 6 which bears upon plate 5 whereby the free end of movable member 2 is normally held away from main member 1 when the electrode (not shown) is inserted between the ends of these two members which naturally form a jaw for holding said electrode. When releasing the electrode or inserting a new electrode in said jaw spring 6 moves along the upper surface of plate 5 and the insulating plate prevents the electric current from passing through or into springs 6 thus indefinitely prolonging the life and tension of said springs 6.

The main member 1 is provided at its outer end with a handle portion 7. Said handle portion 7 having a bore 8 leading into the same from the outer end thereof. The top side of the handle portion 7 is provided with an opening 9 having inclined end walls 10 the said opening communicating with bore 8 as best shown in Figure 5 of the drawings. A nut 11 is adapted to pass through said opening into bore 8 and the said nut is provided at its upper edge with a flange 12 which is adapted to engage upon the inclined surfaces 10 when the nut is tightly drawn into the opening 9 for the purpose of securely fastening the uninsulated electrical cable to the main member. A bolt 13 passes through the lower wall of the portion 7 and has a threaded engagement with the nut 14. The head 14 of the bolt 13 is housed in a recess 15 provided in the lower side of the handle portion 7. The top side of the portion 7 is provided with a recess 16 which communicates with the recess 15 and these recesses form an air chamber which serves as means for preventing excessive heat from being transmitted to the insulating sleeve which is gripped in the hand of the operator and which will be hereinafter described.

The rear portion of the handle 7 is provided at its upper and lower sides with the recesses 17 and 18 respectively, as shown in Figure 5 of the drawings and the parts 19 lying between the recesses, 17 and 18 serve as means for holding screws 20, the lower ends of which are threaded through a plate 21 which is transversely mounted in the recess 18. The heads of the screws 20 are in the recess 17. The bar across the bore in main member 1 is drawn by means of these screws against the wire cable and its insulation, holding it firmly as a part of said main member, thus clamping the cable into the bore of the main member so as to hold both insulation and wire firmly to main member without placing the weight of pulling said cable and handling the tool and loosening the electrical connection of the uninsulated wires to the main member by means of bolt 13 and nut 11, as shown in Figure 5.

The end of the electrical cable 22 is inserted in bore 8 of handle portion 7. The bolt 13 is passed transversely through the uninsulated wires of the cable and is screwed into nut 11 thereby drawing the nut through the opening 9 into bore 8 until the flanges 12 come in contact with the surface 10 of the opening 9, thus completing an electrical connection between the cable and the main member.

The insulation upon the cable and the cable itself 22 passing through the support are gripped firmly against the main member by tightening screws 20 thereby clamping plate 21 and the cable 22 firmly to the main member 1 of the electrode electric welding device. Before inserting the end of the electric cable 22 into the bore 8 a cylindrical sleeve 23 is threaded thereon and after attaching said cable to said main member the sleeve is moved over the portion 7 of the main member 1 to the position as shown in Figure 1 of the drawings. The sleeve 23 is of insulating material and is held in place on the portion 7 by a screw 24 and the sleeve serves as the surface which is grasped by the operator when the tool is taken in his hand and inasmuch as the sleeve is composed of insulating material the operator is protected against current as well as heat from the current by the air tending to circulate through the chambers 15 and 16 passing in and out at either end of the sleeve 23 which is spread from the sides of the cable 22.

Having described the invention what is claimed is:—

1. An electric welding device comprising a main electrode member provided at one end with a bore adapted to receive a cable and the insulation thereof, a nut passing through the wall of said member and entering said bore, a bolt passing through the opposite wall and screwed into the nut, and a clamping plate movably mounted upon said member and adapted to enter the bore thereof and means for drawing said plate in contact with the cable and the insulation thereof.

2. An electric welding device comprising

an electrode member having a bore adapted to receive a cable, clamping devices mounted at spaced intervals along the bore, the electrode member having an opening in its wall located between the clamping devices adapted to admit air into the bore, and a handle of insulating material attached to the electrode member and disposed over the clamping devices and said opening.

In testimony whereof I affix my signature.

JESSE L. NIEMANN.

Nov. 30, 1948. **H. BEAUREGARD** 2,455,108

ELECTRODE HOLDER

Filed Oct. 8, 1945

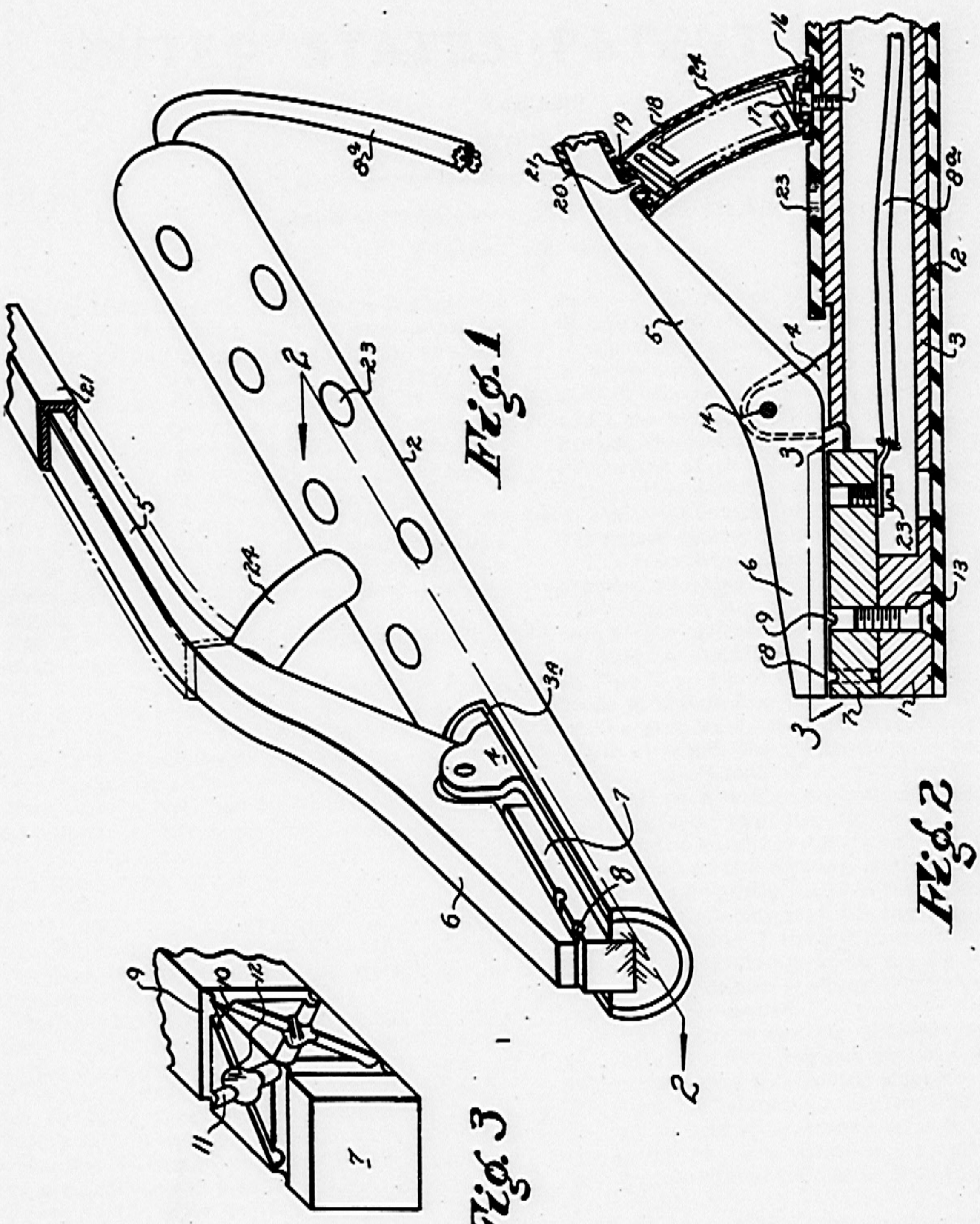


Fig. 1

Fig. 2

Fig. 3

HECTOR BEAUREGARD INVENTOR.

BY

ATTORNEY

Patented Nov. 30, 1948 **2,455,108**

UNITED STATES PATENT OFFICE

2,455,108

ELECTRODE HOLDER

Hector Beauregard, Utica, Mich.

Application October 8, 1945, Serial No. 621,031

1 Claim. (Cl. 219—8)

This invention relates to electrode holders the object being to provide a new and improved device for holding an electrode including an insulating cover for the instrument preventing contact of the hands of the user with one side of the circuit and includes a pair of pivoted members including a block having grooves formed therein at various angles in which the electrode may be positioned and held therein by the other jaw.

These and other features and objects of the invention are hereinafter more fully described and claimed and the preferred form of the device embodying my invention is shown in the accompanying drawing in which:

Fig. 1 is a perspective view showing my improved electrode holder.

Fig. 2 is a section taken on line 2—2 of Fig. 1.

Fig. 3 is a perspective view of the grooved block whereby the electrode may be held at various angles to the longitudinal center line of the block.

The invention seeks to provide a new and improved form of electrode holder, a stationary arm and a piston arm and one of the jaws being connected to one side of an electric circuit while the work piece being operated on is secured to the other side of the circuit. The stationary jaw 1 is of tubular form as indicated in Fig. 2 and is introduced into a tube 2 of insulating material to prevent the hands of the user coming in contact with the tubular portion 3.

The said tubular portion 3 has a slot 3*a* and a pair of lugs 4 providing a pivotal support for the handle 5 having the jaw 6 which is in opposed relation to a block 7 connected in a circuit by the wire 8*a*. The upper surface of the block 7 provides a jaw in opposed relation with the jaw 6 of the pivoted handle portion 5 which preferably has a smooth plane surface 8 while the opposed surface of the block is formed with a series of grooves 9, 10, 11, the grooves 10 and 11 being at a right angle one to another. The terminal block 7 has the threaded apertures 12 to receive the screw 13 to hold the jaw in position on the stationary jaw 1, as will be understood from Fig. 2.

The handle 5 with which the jaw 6 is integrally formed is pivotally supported on the pin 14 extending through the handle portion 5. The insulating casing 2 is held from longitudinal movement by the screw 15 having a head in a washer like element 16 provided with the tubular portion 17 carried by the insulating casing 2 and the other end on a similar washer like element 19 in which a projecting element 20 on the handle is positioned and thus serves to prevent displacement of the end of the spring 18 engaging the washer 19. The handle element 5 is of metal and is preferably provided with an insulating cover 21 as shown in Fig. 1 and serves to prevent contact of the hands of the user with the handle while the tube 2 performs a like function in preventing the hands of the user contacting a metallic portion of the electrode holder when in use. The portion 8 of the electric circuit is maintained in electrical contact with the block by the screw 23*a* shown clearly in Fig. 2.

The electrode is positioned in any one of the grooves provided in the upper surface of the block 7 which forms a stationary jaw in opposition to the pivoted jaw 6 and the spring member 18 tends to hold the jaw in the position shown in Figs. 1 or 2 and thus securely holds the electrode in the desired position in one or the other of the grooves 9, 10 or 11 depending upon the angle at which the electrode is to be held in a welding operation. The electrode is preferably provided with similar grooves on each side of its four surfaces and the circuit wire 8 extends through the handle and is directly connected with the block 7 at the forward end of the tube.

The handle portion is preferably provided with a series of apertures 23 beyond the end of the tubular member 3 to permit circulation of air through the hollow portion of the handle element 2 to maintain the handle portion cool during use of the device.

In use of the device the electrode is positioned in any one of the grooved portions 9, 10 or 11 depending upon the desired angular position of the electrode relative to the longitudinal axis of the holder and it is securely held in position by the spring 18. The spring is preferably encased in a flexible rubber tube 24 as indicated by dotted lines in Fig. 2.

It is believed evident from the foregoing description that my improved electrode holder is of comparatively simple construction and that the hands of the user are insulated from the metallic parts and thus avoids all danger of injury to the hands of the user.

Having thus briefly described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is:

An electrode holder comprising a pair of pivoted members, one of said members being of tubular form and having a slot opening through one end thereof, an insulating casing enclosing the tube, said tube at its forward end having a portion of greater thickness than the thickness of the tube, a copper block secured in surface contact with said thicker portion of the tube and having a surface thereof extending outwardly of the slot, the said surface having a series of grooves at various angles to the longitudinal axis of the block, one of the pivoted members having a terminal portion substantially parallel with the surface of the block when in contact therewith, spring means tending to hold the jaw of the pivoted member in contact with the grooved surface of said block, a wire connected with the grooved block and extending through the end of the tubular member and connected with a source of current supply, it being understood that the work piece is connected with the opposing wire of an electric circuit whereby through contact of the electrode with the work piece the electrode is heated to welding condition at the end thereof in contact with the work piece substantially as described.

HECTOR BEAUREGARD.

REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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No. 15457

JOINT APPENDIX

In the United States Court of Appeals for the District of Columbia

United States Court of Appeals
For the
District of Columbia Circuit

FILED JAN 13 1960

Joseph W. Stewart
CLERK

No. ~~15,437~~

THOMAS S. DONNELLY, JR.,
Plaintiff and Appellant,
vs.
ROBERT C. WATSON, Commissioner of Patents,
Defendant and Appellee

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

Interstate Brief & Record Co., 642 Beaubien St., Detroit 26, Michigan

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Thos. S. Donnelly—

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Cross Examination 42a-55a

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District Court of the United States for the District of Columbia

THOMAS S. DONNELLY, JR.,
Plaintiff,
v.
ROBERT C. WATSON,
Commissioner of Patents,
Defendant.

CIVIL ACTION NO. 1596-57

DOCKET ENTRIES

1957	
June 28.	Complaint, appearance filed.
June 28.	Summons, copies (1) and copies (1) of Complaint issued; served 7-1-57; Attorney General served 7-5-57.
Aug. 21.	Answer of defendant to complaint, c/m 8-20-57; app. C. W. Moore, filed.
Aug. 21.	Calendared (N)
1958	
Apr. 1.	Certificate of readiness N/AC filed.
1959	
Apr. 13.	Heard and taken under advisement; (Rep. E. Markwalter); Curran, J.
May 9.	Brief of plaintiff; c/m 5/6/59, filed.
May 9.	Transcript of proceedings, 4/13/59, pp. 1-16 (plaintiff's copy) (Rep. E. Markwalter) filed.
June 17.	Memorandum opinion finding for the defendant; (N) Curran, J.
July 24.	Transcript of proceedings, p. 1-116, 4-13-59 (Rep. E. Markwalter) filed.
Oct. 6.	Findings of fact and conclusions of law (signed) 9/29/59; (N) Curran, J.

Oct.	6.	Judgment dismissing the complaint with costs against plaintiff; (N) (signed 9/29/59) Curran, J.
Nov.	2.	Notice of appeal of plaintiff from order of 10-6-59; copy to C. W. Moore; deposit by Rinehart, $5.00 filed.
Nov.	2.	Cost bond on appeal of plaintiff in sum of $250.00 with U.S.F. & G.; power of atty to clerk approved and filed.
Nov.	13.	Memorandum of plaintiff in re exhibits, c/s 11-13-59 and a manual filed.
Nov.	13.	Plaintiff's exhibits one through seven and nine through twenty-three filed.

COMPLAINT

(Filed June 28, 1957)

Comes now Thomas S. Donnelly, Jr., plaintiff, and brings this his complaint against Robert C. Watson, Commissioner of Patents, in his own right under Section 145 U.S.C. upon which jurisdiction is based.

1. The plaintiff, Thomas S. Donnelly, Jr. is a citizen of the United States and a resident of Detroit in the County of Wayne and State of Michigan.

2. The defendant, Robert C. Watson, is a citizen of the United States and is officially a resident of the District of Columbia, and is duly appointed, qualified and acting Commissioner of Patents of the United States Patent Office, and is sued as Commissioner of Patents of the United States Patent Office.

3. That prior to December 30, 1950, this plaintiff, being then a citizen of the United States, was the first, original and sole inventor of a certain new and useful improvement in an Electrode Holder, not known or used by others before his invention or discovery thereof, and not patented or described in any printed publication before his invention or discovery thereof for more than one year prior to said

date and not patented in any country foreign to the United States on an application filed by him or his representatives or assigns more than twelve months prior to said date, which invention comprises an electrode holder for use in electric arc welding operations.

4. That on the 30th day of December, 1950, this plaintiff, being the inventor, as aforesaid of the said invention, and being a citizen of the United States, made application to the Commissioner of Patents for Letters Patent of the United States for so much of said invention as is embraced in, among others, the claims thereof more particularly mentioned, said application being made in accordance with the then existing Acts of Congress and this said plaintiff as applicant for said Letters Patent, duly complying in all respects with all of the requirements of the law in such case made and provided and paying the fees required therefor by Statute, and the said application including among others the following claims, as will more fully appear by a duly authenticated copy thereof, ready here in Court to be produced, to wit:

24. In an electrode holder of the class described, a jaw having a flattened upper peripheral surface adjacent its forward end for engaging an electrode, said forward end being tubular for the reception of a bared end of an electric cable for engaging said jaw at the location of said surface; securing means for retaining said cable in said engagement with said jaw; a pair of longitudinally directed spaced apart arms extending rearwardly from said tubular portion adapted for insertion into the end of a tubular handle, and a connecting member for connecting the rear ends of said arms.

26. In an electrode holder of the class described, a jaw having a flattened upper peripheral surface adjacent its forward end for engaging an electrode, said forward end being tubular for the reception of a bared end of an electric cable for engaging said jaw at the location of said surface; securing means for retaining said cable in said engagement

with said jaw; a pair of longitudinally directed spaced apart arms extending rearwardly from said tubular portion adapted for insertion into the end of a tubular handle and a connecting member for connecting the rear ends of said arms, the connecting member constituting an annulus engaging the inner surface of said handle rearwardly of its forward end; and an annulus at the forward end of said arms insertable into the forward end of said handle for engaging the inner surface thereof.

45. In an electrode holder of the class described, a tubular handle-supporting body having a passage formed therethrough from end to end, said body, at the forward portion thereof, being flat on the upper side of its periphery to provide an electrode engaging surface.

46. In an electrode holder of the class described, a tubular handle-supportinng body having a passage formed therethrough from end to end, said body at the forward portion thereof, being flat on the upper side of its periphery to provide an electrode engaging surface; and the forward portion of said body, on its upper side at the location of said surface being thicker in cross section than the remaining portion of said body.

47. In an electrode holder of the class described, a tubular handle-supportinng body having a passage formed therethrough from end to end, said body, at the forward portion thereof, being flat on the upper side of its periphery to provide an electrode engaginng surface, the forward portion of said body on its upper side at the location of said surface being thicker in cross section than the remaining portion of said body; and said flat surface being of less width than the diameter of the forward portion of said body.

5. That said application was given Serial No. 203,594, and initially assigned to Division 60 of the United States Patent Office.

6. That on March 4, 1955, the defendant, Robert C. Watson, acting through the Examiner in charge of said application, finally rejected the claims herein last cited and identified as claims Nos. 24, 26, 45, 46 and 47.

7. That within the time required by law, this plaintiff duly aand legally prosecuted an appeal to the Board of Appeaple from the decision of the Primary Examiner in finally rejectinng said claims herein identified as Claims Nos. 24, 26, 45, 46 and 47.

8. That on May 13, 1957, a decision was rendered by the Board of Appeals on said appeal, affirming the decision of the Primary Examiner in finally rejecting said claims herein identified as claims Nos. 24, 26, 45, 46 and 47, and that the said Board of Appeals, as plaintiff submits, erroneously and contrary to the law and evidence, affirmed the said Primary Examiner and refused the allowance of said claims.

9. That the defendant, Robert C. Watson, as Commissioner of Patents, through the action of said Board of Appeals, as aforesaid, has finally rejected said claims and each of them and that said claims and each of them now stand finally rejected in the United States Patent Office as will more fully appear by a duly authenticated copy of said application as of the date of said decision of the Board of Appeals, to wit, May 13, 1957, which rejected application, together with all records of the United States Patent Office appertaininng thereto, and is hereby referred to, incorporated herein and made a part hereof, and profert is hereby made of a duly certified and authenticated copy of the same, to be produced in Court when necessary.

10. That this plaintiff did not take an appeal from the said decision of the Board of Appeals to the United States Court of Customs and Patent Appeals.

11. That the said decision of the said Board of Appeals was rendered within sixty (60) days from the date of filing of this complaint.

12. That the defendant, Robert C. Watson, Commissioner of Patents, has refused and still refuses to grant Letters Patent on the aforesaid application for the inven-

tion embraced in the herein recited claims, although this plaintiff is lawfully entitled to and is the sole owner of all right, title and interest in and to said invention and in and to and under said application, and is entitled to a United States patent for the same to be issued on the application filed as aforesaid.

Wherefore this plaintiff brings this complaint under and in accordance wit hthe provisions of the Statute in this case made and provided, and prays that this plaintiff be adjudged and decreed to be entitled, according to law, to receive Letters Patent of the United States for the aforesaid invention as specified in the herein recited claims of said application and that a judgment be entered herein authorizing the Commissioner of Patents to issue such patent to this plaintiff.

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ANSWER TO THE COMPLAINT

(Filed August 21, 1957)

To the Honorable the Judges of the United States District Court for the District of Columbia.

1, 2. The defendant admits the allegations of paragraphs 1 and 2 of the complaint.

3. The defendant asserts that he is without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 3 of the complaint.

4. The defendant admits that on the 30th day of December 1950 plaintiff, being a citizen of the United States, made application to the Commissioner of Patents for Letters Patent of the United States for so much of an invention in an electrode holder for use in electric arc welding operations as is embraced in claims 24, 26, 45, 46, and 47 of plaintiff's application entitled "Electrode Holder," Serial No. 203,594. The defendant denies, however, that plaintiff was the inventor of such an invention and that such an invention is embraced in other claims. The defend-

ant further admits that said application was made in accordance with the then existing Acts of Congress and that plaintiff as applicant for said Letters Patent paid the fees required therefor by statute. The defendant denies, however, that plaintiff duly complied in all respects with all the requirements of the law in such case made and provided. The defendant additionally admits that said application includes claims 24, 26, 45, 46, and 47 as copied under paragraph 4 of the complaint. The defendant denies, however, that said application includes other claims.

5, 6, 7. The defendant admits the allegations of paragraphs 5, 6, and 7 of the complaint.

8. The defendant admits that on May 13, 1957 a decision was rendered by the Board of Appeals on plaintiff's appeal affirming the decision of the Primary Examiner in finally rejecting the claims identified in the complaint as claims Nos. 24. 26, 45, 46, and 47 and that the said Board of Appeals affirmed the said Primary Examiner and refused the allowance of said claims. The defendant denies, however, that such affirmance and such refusal were erroneous and contrary to the law and evidence.

9, 10, 11. The defendant admits the allegations of paragraphs 9, 10, and 11 of the complaint.

12. The defendant admits that he has refused and still refuses to grant Letters Patent on plaintiff's application for the invention embraced in the claims recited in the complaint. He denies the remaining allegations of paragraph 12 of the complaint.

Further answering, the defendant asserts that plaintiff is not entitled to a patent containing any of the claims of his application involved in this civil action recited in the complaint for the reasons given and in view of the references cited in the Examiner's answer and the decision of the Board of Appeals in that application. Profert of copies of said answer, decision, and references is hereby made.

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EXCERPTS FROM TRANSCRIPT OF TESTIMONY

(Filed May 9, 1959)

* * * * *

(31) Mr. Mentag: Your Honor, then I would like to introduce at this time Plaintiff's Exhibit No. 1, which has been marked for identification. It is a certified copy of the file wrapper and history of the application in issue here.

The Court: Very well.

* * * * *

(32) (The document previously marked for identification as Plaintiff's Exhibit 1 was received in evidence.)

Mr. Mentag: The Plaintiff would also like to introduce at this time the copies of the three patents that have been cited by the Patent Office, namely, the Beauregard patent, No. 2,455,108, which has been marked for identification as Plaintiff's Exhibit 2.

* * * * *

I would like to also introduce a soft copy of the patent to Niemann, No. 1,860,262, which has been marked for identification as Plaintiff's Exhibit No. 3.

* * * * *

The Plaintiff would also like to introduce at this time a copy of the British patent to Smout, et al. No. 571,035, which has been marked for identification as Plaintiff's Exhibit No. 4.

(The documents previously marked for identification as Plaintiff's Exhibits 2, 3, and 4, respectively, were received in evidence.)

* * * * *

(33) *Direct Examination of Thomas S. Donnelly*

Q. Will you please state your name, age, occupation, and address?

Q. Thomas S. Donnelly; 68 years of age; patent lawyer; Book Building, Detroit, Michigan.

Q. Mr. Donnelly, what education have you had?

A. Well, I have a Bachelor of Arts degree and a Master of Arts degree from Creighton University, Omaha.

I have a Bachelor of Laws degree and a Master of Patent Laws degree from Georgetown; and I have had three years of teaching in school, two years in high school and one year in college, teaching physics and mathematics; and I have had such education as I have acquired from practicing for 45 years.

Q. You mean you have been a patent attorney for 45 years; is that right?

A. Just finishing my 45th year.

Q. What is the nature of the work that you do in the patent law field?

A. Well, we file applications and prosecute them through (34) the Patent Office. We take care of interference proceedings, and various legal proceedings connected with prosecuting patents through the Patent Office; and rendering opinions to the clients on patentability, validity, and infringement, and the handling of infringement cases; and the general practice of Patent Office law from beginning to end.

Q. Now, Mr. Donnelly, will you tell the Court if you had anything to do preparing and filing of the application in issue here today?

A. I prepared and filed that application. That is not my application, although the names are the same.

This is the application of my son, but I prepared and filed the application.

Q. Have you yourself ever had any patents on electrode holders issued to you?

A. Yes, I have a number of them; possibly, oh, 15, 16, or 17.

Q. Well, what experience have you had with electrode holders besides prosecuting patent applications thereon?

A. Well, in 1939, my son and myself decided we would manufacture electrode holders. That is the spring of 1939, and we spent the spring and summer of 1939 studying the various types of electrode holders which were on the market.

We found that there were three general types: The screw type, the coil spring type, and the resilient jaw type.

And we decided to adopt the resilient jaw type and (35) manufacture and sell that, and we began in the fall of 1939 to manufacture an electrode holder of the resilient jaw type and continued doing that until we sold the company in 1954.

Q. Well, what was your occupation with this company? I believe it was the Detroit Electrode Holder Company?

A. Well, my occupation was practically everything. I was the general manager, and the chief engineer, and the purchasing agent, and general sales manager; and everything.

My son and I were running the company, and between us we divided the duties up as much as we could.

Q. Were you also carrying on a patent law practice at the same time?

A. Yes, I didn't devote much time to patent law at that time. The patent law business was down anyhow, especially during the war.

Q. How extensive were the sales of the Detroit Electrode Holders?

A. Well, we began putting the holder on the market and began making commercial sales in the summer of 1940, and during the war we developed sales. We sold the holder in the name of the Detroit Holder, the Detroit Electrode Holder; and during the war we developed the sales of the Detroit Electrode Holders until we were selling 80 percent of the holders used in the United States.

Q. Well, were there any patents issued to your son, the (36) present plaintiff, on electrode holders?

A. Yes, between my son and myself we had 26 patents on the electrode holders.

We were constantly designing and developing the holder, trying to improve it; and every time we made an improvement which we considered to be of a patentable nature, we had it patented.

Q. Well, what were some of the difficulties that you encountered with prior electrode holders that gave rise to the present invention?

A. Well, the difficulties that we encountered were difficulties that we knew before we began manufacturing electrode holders.

When we began to look into the electrode holder field for the purpose of manufacturing an electrode holder, we discovered that there were certain difficulties which had to be met and overcome. The prime difficulty was the question of heat.

Now, the coil spring type of holder which was on the market at that time had a lower jaw which was connected to the welding cable that led to the machine; and that lower jaw was the only jaw which was alive, so that the current passing from the connection, which is within the handle, up to where the electrode was engaged, had to pass through that lower jaw only.

(37) Q. Mr. Donnelly, do you have an exhibit of this Jackson holder that you are talking about?

A. I am talking about a coil spring holder of which I have a sample, known as Plaintiff's Exhibit 20, marked for identification.

And the resilient jaw type holder had a pair of steel jaws.

Now, the coil spring type of holder did not have steel jaws. It generally was a copper alloy, and had a conductivity of about 40 percent.

But in the resilient jaw type of holder both jaws were conductors, so that the current was carried to the forward end of the holder, where the electrode was located, by both of the gripping jaws.

In answer to your question as to what difficulties we discovered, the main difficulty was heat, and that heat was encountered because of the great distance that the current had to be conducted from the point of connection to the location of the electrode. As the current came in from the welding cable, passed from the point of connection through the forward part of the electrode holder, it had to pass through material of low conductivity, comparatively low conductivity compared to the welding cable. And we recognized as our difficulty the heat which was engendered by the heat of electrical resistance.

(38) Now, that was a difficulty that was encountered in all electrode holders on the market, even the coil spring type of holder had that same difficulty.

There was a company by the name of Martin Wells putting out a coil type spring holder, and putting out a screw type holder, which had the same difficulties as the coil spring type holder and the resilient jaw type holder.

The cable as shown in Plaintiff's Exhibit 17, the cable was connected to the metal part positioned within the part of the handle which is gripped by the hand, and the current then had to travel through a small rod, through the forward end of the holder, and as that current met that metal of low conductivity, the heat of electrical resistance developed, so that that was a common difficulty, well known in electrode holders. The big thing was to get rid of the heat.

And another feature that you had to guard against on electrode holders was the question of weight. Now, in developing the resilient jaw type of holder, when we put the Detroit holder on the market, we had the lowest weight holder on the market, by nine ounces. So we were able to solve comparatively the weight question, comparatively to competing holders.

And the next question was the question of the fraying of the cable. Now, this cable which is connected to the electrode holder is not a solid rod. It is a cable having a multitude (39) of rods of very hairlike dimension, contained in a welding coating. In order to connect the cable, the insulation contained within the insulating coating—in order to connect the cable, the insulation is cut back so the forward end of the cable is bare. The bare end of the cable is then inserted in a socket, and that was true of all types of holders; and secured to that socket.

Now, as the flexing of the cable takes place in the use of the electrode holder, the cable will always flex at the rearward end of the connection because there is nothing to stop it, and the result was that these fine strands of cable would break, become severed, and the result was that you would get a short, and as they come back in contact again, you would get heat, so that that was a difficulty.

And the next difficulty we had to avoid was the question of balance. Now, what I mean by balance is that when the welder is using the holder it should be in his hand so that it does not tend to tip downward or tip rearward. As he has got that handle by the hand, it is in a neutral condition. It does not tip downward at the forward end or does not tip downward at the rearward end. That is what is known as balance.

Now, a holder is either balanced or it is not balanced.

And we had to build these holders so that we had (40) these four characteristics in them.

Q. Now, Mr. Donnelly, how did you learn of, let us call them these imperfections in the prior art holders?

A. Well, as I said, before we started manufacturing them that we learned about them by inquiring among the trade, among the welders, and after we started manufacturing them, we learned from the welders because of their comments and complaints.

Q. Well, what was the construction of the Detroit Electrode Holders that you were making and that you tried to make to overcome these imperfections that you got in the field?

A. Well, this holder as shown by Plaintiff's Exhibit for identification No. 5 was the first type of Detroit holder made, in which a pair of separated tongs is provided between which the rear ends of the resilient steel jaws were secured; and we found that under certain conditions a good connection could not be made.

We then developed a holder in which a single tong connection was made, such as shown in Exhibit No. 7 marked for identification, in which two resilient jaws were placed in embracing relation on this brass tong and secured together.

Now, we found that gave us a much better connection and cut down the heat of that handle considerably. However, because we are using two jaws to conduct the current, instead (41) of the single jaw as the coil spring and the screw type holder used, we had reduced our holder until it was running cooler than any holder on the market but it wasn't running cool enough. There are times in continuous welding when using the Detroit Holder when the welder would either have to stop operatinng, or change holders, or immerse it in a bucket of water. So that for continuous welding, we were not getting the coolness that we wanted.

Q. What was the next step that you took then to try to get a cooler holder?

A. Well, I don't know whether I gave these to you in sequence or not, but if you will examine Plaintiff's marked for identification No. 7, you will notice that there are certain notches cut in the periphery of these annular members on the socket. That was to allow the circulation of air, and there are only four of those, circumferentially spaced.

We then produced the holder marked for identification Plaintiff's Exhibit 9 in which there are only six contacts of the socket or cable connected portion with the handle, thus allowing a greater amount of air to pass through. Now, that was one thing we did do to get away from the heat; and I might say these developments are not taking place one after the other, day by day, but it was taking time to get them out.

We then decided that we might develop a coil spring type of holder in which the lower jaw was formed of high (42) conductive material; and we procured the high conductive material having the tensile strength necessary and produced a holder such as shown in this marked for identification Plaintiff's Exhibit 10, in which the lower jaw alone was carryinng the current, but the lower jaw was of a high conductive material. It was chrome copper, about 99 percent copper, but we found still that under continuous welding operation, you were getting heat, excessive heat, so that something had to be done.

We then proceeded to develop a holder which would exemplify the ideas that we had in mind, that if you brought the cable up closer to the location of the rod, you are going to get away from that heat of conductivity.

For instance, in this Detroit holder, the cable is connected at the rear end ,and the rod is mounted at the fore end, from 6 to 8 inches, depending on the size of the holder, of low conductive metal through which the current must pass.

Q. What exhibit was that last one?

A. Exhibit 7.

Now, this marked for identification Plaintiff's Exhibit 9 is a Detroit Holder of the same type, but of a larger amperage in which the current travels much more than that through low conductive metal.

In the coil spring type of holder the current had (43) to travel through low conductive metal to get to the location of the rod, and that was true of the screw type.

So we figured if you could bring that cable up to the location of the rod, you would get a cooler holder; and we then developed a holder which is exemplified by Exhibit marked for identification as Plaintiff's Exhibit No. 11, in which the cable was brought real close, within three inches of the location of the welding rod; and we found that that gave us a considerably cooler holder.

As a matter of fact, under normal welding conditions, it would have been satisfactory, except for the design. In order to use the coil spring type of holder having that connection so close to the rod, it was necessary to bring the trigger up and back at a sharp angle, which made it a very impractical holder for welding in close quarters.

However, we sold a good many thousands of these holders of the type shown in Exhibit 11, and knew that we were on our way to get a cooler holder, a cool holder in which we could still maintain the balance and reduce the the weight, in Exhibit 11, because it reduces the metal as much as we did, it did reduce the weight, and so we were getting a lighter holder and a cooler holder.

The Court: We will take our recess at this time.

(Thereupon a short recess was had.)

(44) By Mr. Mentag:

Q. Mr. Donnelly, when the recess started, you were going to tell us about further improvements that your company made in the holders?

A. Yes, but before I do that, I might say this holder that is manifested by Plaintiff's Exhibit for identification No. 12, is the same holder exactly as that shown in Plaintiff's Exhibit 11, excepting it has a handle on it.

Now, we have gotten lightness, and we have gotten coolness, but we haven't gotten practical design. We do have balance.

Now, prior to coming to Exhibit 11 and Exhibit 12, we develop what is known as the marine type of holder. That is the type of holder in which the socket, such as the rear end of Exhibit marked for identification Plaintiff's Exhibit 6, was detachable from the forward part of the holder, and it was screwed permanently in the handle. Then when the holder got too hot, they could unscrew the holder and take it off, and screw on the forward end of the holder, and go welding again.

But we found that there was difficulty there because when you screwed the forward end of the holder onto the part which was mounted stationary in the handle to which the cable was attached, it was necessary to make sure you didn't have a leaky joint. So after some development, we developed a holder (45) whereby when the two are screwed together properly, we got an absolutely electrical leak-proof joint, and the holder was much cooler because of that leak-proof joint.

We then proceeded to develop a screw type holder, such as shown by the Exhibit marked for identification as Plaintiff's Exhibit 18, in which the rod is inserted through a hole in the forward end, and the forward end is threaded relatively to the brass part which is attached to the handle and to which the cable is attached.

This holder brought the cable up closer to the rod than any holder we had developed up to date, but it still did not solve the problem of the heat. It did solve the problem of weight. It gave us a very light holder and one which was possessed of balance.

Q. What was the next step?

A. The next step then was the development of the holder in issue, and that is identified by the exhibit marked for identification Plaintiff's Exhibit 13, and in that holder we brought the cable right up to the location of the rod, and this was what we had been after for over ten years, to develop a holder whereby the cable could be brought up to the location of the rod.

Now, there is more than bringing the cable up to the location of the rod in a holder of this type, far more than that. First of all, you get lightness by bringing the cable up (46) there because you reduce the metal to a minimum; and you get balance; and you get the fraying of the cable, the breaking of the cable where it is connected is avoided.

But from a heat standpoint, there is much more involved because in this holder in issue, we have a holder whereby the heat is dissipated through a current of air, the handle forms a flue, and the holder being hot at the forward end, the air flows through the handle and through the tubular jaw outwardly through the front end, until it keeps that forward end of the holder considerably cooler than otherwise.

It keeps the handle perfectly cool. So that with the type of holder, such as shown by Exhibit 13, a welder can proceed on continuous welding and there will be no excessive heat engendered in the handle of the holder, and the holder will not heat up to a point where it wil be uncomfortable for him to hold the holder.

In welding operations there is some heat developed in all holders. Even the holder shown by Exhibit 13 will heat up, but the question is, Does it heat up to such a degree that it becomes unbearable to the operator?

When we found that we had developed this holder, we realized then we had also developed a holder which was perfectly balanced.

Now, the cable, this holder as shown by Exhibit 13, is such that until the cable is fastened, mounting it at the (47) mid point, the forward end of the holder would tilt downward, but when the cable is attached extended outwardly through the rear end of the holder, the balance is such that the holder may be placed on a single point and perfectly balanced. There is no tilting downwardly or there is no tilting upwardly; and on account of the circulation of air through the holder, we have arrived at a holder which was practical and cool. At least, we thought we did.

Then we made up about fifty of those holders and put them out for tests with different manufacturers and discovered that we were right.

Q. Mr. Donnelly, what do you mean that you discovered that you were right when you put the holder, the type of Plaintiff's Exhibit No. 13, out in the field for test purposes?

A. We discovered then that we had a cool holder. As a matter of fact, the holder when placed on the market didn't have to be sold to the welding engineer. When he saw what we did, he immediately came to the same conclusion, that we had a cool holder, without even testing it.

Q. Now, you have been talking a lot about coolness. What do you want a cool holder for?

A. Well, you see in a welding operation, you are operating at about 2000 degrees. When you come down and strike your arc and establish your arc, you are getting now into about 2000 degrees; and I might say that when I heard your opening (48) statement, it wasn't exactly right. Now, when you come down, you don't come down and contact the workpiece and stay on it. You come down and hit it, and it is an arc, and you come down and hit the workpiece and draw your electrode along it, so that it comes away from it a quarter to a half an inch. If you left it on there, the electrode itself would freeze and become a part of the workpiece.

So when he comes down and hits that arc and starts his welding operations, he is operating from 1800 to 2000 degrees at the arc, and he has to have heat enough to melt the material that he is welding, and he has to have heat enough to melt the rod, which is usually made of steel, and as he is continuing welding, he is getting heat from three different sources. He is getting heat from that arc by radiation. He is getting heat from the arc by conduction, coming up through the rod.

Now, if you add to that the heat of electrical resistance in the handle itself, you are liable to develop a condition that becomes unbearable to the operator, so that he cannot hold the handle in his gloved hand, and a welder always wears a glove.

So that heat is a very important factor because if he cannot hold the holder, he cannot weld, and if he cannot continue the continuous welding, you are not getting an economical operation.

(49) Q. How did the Detroit Electrode Holder, Exhibit 13, compare to competing holders as to the problem of heating?

A. There is no comparison at all. There is no holder on the market which will compare with this holder in issue in this case, for the four points mentioned, and particularly for coolness.

Q. Well, didn't the other manufacturers try to take some steps to cool their holders?

A. Yes, they did.

Now, one way they would do they would fasten the holder to the cable leading back to the welding machine by what is known as a whip. A whip is a length of cable six to twelve feet long which is connected to the electrode holder, and then connected to the cable leading to the welding machine. When the holder would get hot, they would disconnect the whip and take it off the line and connect another holder which had a whip on it, so that they were then using a cool holder. Well, that was one way.

Another way they did was they would have a bucket of water and stick the holder in the bucket of water. Now, most of these holders are insulated, and they are insulated for a purpose that is not involved in this application; and when that holder is hot after being operated at 2000 degrees for a considerable period of time, and it is suddenly immersed in a bucket of water, you are going to get this disintegration, (50) eventual disintegration of the metal part, and more rapid disintegration of the insulation, because the sudden chilling will cause the metal to crystallize and cause the insulation to disintegrate.

And another way they had—they tried it but it wasn't practical—they brought two air lines up to the holder, and they bring air into the handle, toward the forward end of the holder, in which a current of air was blowing out of one tube and passing into another tube, and going back, and they were trying to air cool the holder.

They also tried water cooling in the same manner, but that was impractical because you are bringing up to the holder two additional tubes, hoses, and the welder has enough weight in his hand as it is, because one of the problems is to reduce the weight that the welder has to handle.

Q. Mr. Donnelly, I hand you Plaintiff's Exhibit 14, which has been marked with that number for identification, and ask you if you can identify this exhibit?

A. This is a holder put out by a competitor of the coil spring type, non-insulated.

Q. What is the name of that company?

A. The Dockson Company.

Q. Can you tell me if the holder that is exemplified by Plaintiff's Exhibit 14 will heat up in operation and what is the cause of this?

(51) A. Well, it will heat up intensively in operation particularly because of the heat of electrical resistance. It will get heat, of course, conductive heat through the rod itself. It will get radiated heat from the arc, but you notice here he has a steel lower jaw, and that is the only jaw that is electrically connected, and it is a very low cross-sectional area, and this holder never was used for continuous welding and never was used on high amperage, like a quarter-inch rod. I might say those rods are of different sizes. They run from 1/32nd of an inch up to ⅜ths of an inch.

Q. Mr. Donnelly, I hand you Plaintiff's Exhibit marked No. 15 for identification purposes, and ask you if you can identify that exhibit?

A. This holder, marked No. 15, is a competing holder of the coil spring type put out by another competitor.

Q. Does the holder, Exhibit 15, of that type, does that heat up in use?

A. Intensively.

Q. Why?

A. Because the cable is connected at the rear end of the metal part. From there the current has to travel forwardly to the location of the rod, and in doing so it has got to pass through this metal of low conductivity.

Now, the reason that that metal is of low conductivity, they cannot make that metal of copper because they (52) have got to have enough tensile strength to stand the strain of the spring against it, and they have got to have enough tensile strength and cohesion to resist the wear and tear on the holder, so the result is they form it from a copper alloy, brass, and that is of low conductivity.

Q. I show you, Mr. Donnelly, Plaintiff's Exhibit 16, marked with that number for identification, and ask you if you can identify that exhibit?

A. This exhibit is another holder of the coil spring type put out by a competitor, and it is of such a nature that it will heat up because of low conductivity. Now, the cable is fastened to the metal part, which is positioned within the handle, and the current must pass then from the point of connection of the cable forwardly to the location of the electrode, and the result is that this is one of the holders that they use a bucket of water to cool.

Q. Mr. Donnelly, I hand you Plaintiff's Exhibit Number marked for identification as No. 19 and ask you if you can identify that exhibit?

A. The holder marked Exhibit 18 is a holder put out by a competitor.

Q. Excuse me.

A. 19. The holder marked Exhibit 19 is put out by a competitor and is of the high amperage type. This would be about a 500-amp holder, and the cable is connected to the rear (53) into the metal part, and the current must pass forwardly from there through the low conductivity metal to the location of the rod, and the result is intensive heating because of the low conductivity of the material from which it is made, and it has to be made of that low conductivity to stand the gaff on a 500-amp holder.

Q. Mr. Donnelly, you have been talking quite a bit about the problem of coolness and the problem of weight, and how the Detroit Electrode Holder solves this problem. Now, what about the problem of weight which you encountered, while also trying to simultaneously solve the problem of coolness or heating in your holders?

* * * * *

The Witness: Well, as I said, we have developed, when we put out the Detroit Electrode Holder we beat them all on weight. But weight still remains a problem on electrode holders, and that is exemplified, for instance, in this very popular holder, which is indicated by Exhibit 15. There was another exhibit I had here with the forward end of this holder.

Now, Exhibit 15, the part which I hold in my hand corresponds to the parts of Exhibit 13, which I hold in my left (54) hand, and just a casual examination will indicate that there is a difference in their weight, a difference of over a pound.

Would your Honor like to feel that?

Then another disadvantage of the holder, Exhibit 19, is its weight. It is really heavier than Exhibit 13, but in order to get a practical working tool that will stand up at all, they had to resort to that weight. And I might say that these holders when they were put in use, even the Detroit holders, we figured 40 hours service was their limit.

Q. (By Mr. Mentag): Mr. Donnelly, I hand you Plaintiff's Exhibit marked for identification by the number 20, and ask you if you can identify that exhibit?

A. This holder marked Exhibit 20 is a holder put out by a competitor, and in order to solve the heat problem he resorted to an aluminum alloy, and he formed the metal part of his holder out of aluminum and secured thereto a copper alloy jaw, at the forward end, which engaged the electrode.

The result was he got lightness. He got a light holder, but he is using an aluminum alloy instead of a copper alloy, and the result was that he is getting greater heat of electrical resistance, and while he has accomplished lightness, he has sacrificed heat; and the result was that the holder was so hot, it could not be used and soon went off the market. But that was one step that he took to obtain lightness, to (55) resort to an aluminum alloy. And the average mechanic woud say: "Well, use aluminum, it is a lighter metal than copper, than brass, or a copper alloy."

Well, sure, it is lighter, but it has not got the conductivity, and if you do not get the conductivity, you are going to get heat, and it is a vicious circle.

Q. Mr. Donnelly, I would like to ask you one more question on this fraying of the cable problem that you said existed.

Just how did your holder construction eliminate the fraying of the cable? I don't think that point has been brought out too clearly.

A. Well, if we examine this holder, Exhibit 15, it has a handle on it, and the cable is fastened to the rear end of the metal part, and it sticks out through the end of the handle. If the handle was made longer, made a yard long, he could avoid fraying of that cable at the connection because then the weaving of the handle would be spread over a longer distance and would not be concentrated at the point of contact. But since it doesn't, the fraying of the handle is brought about through the bending of the cable at that point, and you would find the same thing in Exhibit 16. He has got the handle on and it gives you an idea.

You see, after that cable is fastened to the handle, it is approximately 3 inches, not more than 3 inches from the (56) end of the handle into the metal part to which the cable is attached, and the result is that the bending of the cable is concentrated at the point of attachment to the metal part; and there is no way they could get away from that with this type of holder.

Now, there was some resorts made to get away from it, but it wasn't practical, and in this present type of holder by bringing the cable up to the forward end of the metal part and fastening it there, the annular members will support the cable and prevent its flexing. If these annular members were not there, and it is made of tubular formation, you still get the same results. You have got a support for the cable extending rearwardly of the point of attachment of the cable to the metal part, so that the flexing then is at that point of support.

Now, this point of support is inwardly of the insulating part of the cable, so that the part of the cable which extends outwardly through the rear end of this metal part of Exhibit 13 is insulated, and it flexes at that point and at that point only, but being insulated, there can be no fraying or breaking of the strands of the cable.

Q. Mr. Donnelly, I also have one more question on the problem of balance. You have told us that a balanced holder would be one which would be neutral in weight, more or less have a point at which it would balance itself.

(57) Now, why is balance important to a welder using a holder out in production?

A. Well, a welder's work now is most trying and most exasperating because he is working in the dark all the time, and he has got the helmet over him, and he has got dark lenses, and so he is working in the dark. It is only when he has got an arc struck that he has any light at all.

Under these conditions, especially in the summer time, because of the helmet covering his entire head, he becomes very hot and perspired, and the least little distraction causes you to worry, and sometimes you throw the holder across the lot when you become exasperated.

But if he had not got balance, he has got another problem to contend with. He is holding the holder in one hand, it is a one-handed operation, and he is down there welding, moving along, maintaininng a bead, and that is the line of weld, and as he goes along that line of weld, he maintains that line and spreads a bead of molten metal and melts the workpiece at the same location.

Now, if he has got something that is pulling down on him, or something that is pulling up on him, he has got to overcome that by the force of his wrist, and he has got another probem, and balance is a serious problem in electrode holders. It is one of those things you have got to pay attention to.

Q. Mr. Donnelly, I hand you Plaintiff's Exhibit marked (58) for identification by the numeral 22 and ask you if you can identify that exhibit?

A. This Exhibit No. 22 is the holder put out now by the company run by my son and myself. We don't operate under the name of the Detroit Electrode Holder Company any more. We sold that out. We operate under the name of the American Welding Specialties Company, and this type of holder is the merchantable holder that is put on the market today. This is the 600-amp holder.

Now, I might say, just comparing the weight here—well, this holder has a handle on it, and I may take the handle off to better illustrate what I have in mind.

Now, this is a 600-amp holder and this holder illustrated by Paintiff's Exhibit 19 is a 500-amp holder. Now, that is a smaller holder than the holder I am holding in my hand now. Now, a comparison of these two holders, Exhibit 19 and Exhibit 22, will show the difference in weight, and Exhibti 22 is a larger, heavier amperage holder than the other.

Would your Honor like to notice the difference in the weight?

The Court: Is it still lighter?

The Witness: Still lighter.

Q. (By Mr. Mentag): By a larger holder, Mr. Donnelly, do you mean it has (59) a larger carrying capacity?

A. Yes, this one is a 500-amp holder and this is a 600-amp.

Q. Mr. Donnelly, I hand you Plaintiff's Exhibit marked for identification by the numeral 23, and ask you if you can identify that exhibit?

A. This exhibit is the holder put out by us on the market today. It is a 300-amp holder, and it embodies the issue in this case, and I will call your attention to the fact that in both of these holders the lower jaw is covered with a layer of insulation, but that layer of insulation is a mold, and it is molded with an opening at the forward end so that the circulation of air through the holder can take place and pass through the handle upwardly through the forward end of the holder, the handle serving as a flue.

Mr. Mentag: Your Honor, I would like to offer in evidence Plaintiff's Exhibits which have been marked and identified as Nos. 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, and 23.

The Court: Very well.

(The exhibits previously marked for identification as Plaintiff's Exhibits 5 through 23, respectively, were received in evidence.)

Q. Now, Mr. Donnelly, I further hand you Plaintiff's (60) Exhibit No. 24 for identification and ask you if you can identify that exhibit?

A. That is a photostatic copy of the Patent Office drawings which were filed in the application which is in issue in this case.

Mr. Mentag: Your Honor, you have probably a smaller copy of these drawings, but I offer you for your use, if it will help, a separate copy of the drawings.

The Court: Very well.

Mr. Mentag: We are now going to the claims, your Honor, and I want to make a little break.

Q. (By Mr. Mentag): Mr. Donnelly, I offer you an exhibit marked Plaintiff's Exhibit No. 25, and ask you if you can identify that exhibit?

A. Exhibit 25 is an analysis of the claims involved in issue in this case, gotten up by Mr. Mentag and myself.

Mr. Mentag: Your Honor, I would like to offer Plaintiff's Exhibit No. 25 in evidence for your use. It is a memorandum of testimony that the expert witness will make relative to the claims. It is more or less of a resumé, but it may help you in analyzing the claims.

The Court: Well, I am going to call for briefs anyway, so you might as well file it.

* * * * *

(61) (The document previously marked for identification as Plaintiff's Exhibit 25 was received in evidence.)

* * * * *

Q. Mr. Donnelly, I refer you to Plaintiff's Exhibit 25 in which you have set forth the claims involved in this case here today, and I refer your attention specifically to Claim 24, and I will ask you how have you set up the claim in this Exhibit 25? Have you broken it down into elements?

A. It is broken into elements, into the various elements of the claim.

Q. Now, I direct your attention to element 1 of claim 24.

Your Honor, I am going into a discussion now on comparison of the claims against the prior patent structure. I have two enlarged photostats of the patent drawings of the Niemann and the Beauregard patents, and I offer them to you for your use or help, and they are already a part of the file wrapper in the Patent Office.

Mr. Donnelly, relative to Plaintiff's Exhibit No. 25, what function does element 1 of claim 24 perform?

(62) A. Well, the element as set out is that it is a jaw having a flattened upper peripheral surface adjacent its forward end for engaging an electrode, said forward end being tubular for the reception of a bared end of an electric cable for engaging said jaw at the location of said surface.

So what it does, it engages the electrode, and the forward end is tubular for the reception of the bared end of an electric cable, for engaging the surface thereof at the location of the electrode.

The claim is not a broad claim; it is a narrow claim. The cable engages the jaw at the location of the electrode, and the electrode engages the jaw. That is the function that is performed.

Q. Can you tell the Court if there is—first of all, what does the Beauregard patent show relative to electrode holders? Is there any structure shown?

A. I think it would be better to go through all these elements at the same time.

Q. Well, all right, strike that question.

Mr. Donnelly, will you tell the Court generally what elements 2, 3, and 4 of Claim 24 are?

A. Well, element 2 calls for securing means, for securing the cable in engagement with the jaw.

Now, this securing means is clearly shown in Fig. 5 of the Patent Office drawing of the application in issue in (63) this case. That is a pressure clip identified by the numeral 30, and it is pressed by the screws 29, so that the cable 26 is pressed against the upper surface of the bore in which it is inserted, leaving a bare space or passage beneath the cable.

Element 3 calls for a pair of longitudinally spaced apart arms extending rearwardly from the tubular portion adapted for insertion into the end of the tubular handle.

Now, those arms are shown in Fig. 9 and may be designated by the numerals 39. They serve as a means for connecting to the annulus supporting which is at the rear end, and this annulus and the arms both serve the function of supporting the handle and maintaining the holder concentric to the handle.

Q. Mr. Donnelly, will you tell the Court what function element 4 embodies?

A. I just mentioned that, 3 and 4. I mentioned them together.

Q. Excuse me.

Mr. Donnelly, will you tell us whether there is any structure shown in the Beauregard patent in issue here in this case, which is Exhibit 2, which would teach or suggest the structure defined in element 1 of Claim 24?

A. Beauregard does not show a jaw having a flattened peripheral surface adjacent to its forward end for engaging an electrode holder, with the forward end of that jaw being (64) tubular for the reception of the bared end of an electric cable for engaging the jaw at the location of the surface as called for by element 1 of that claim.

Consequently, Beauregard cannot accomplish the result, nor will the Beauregard device, nor could the Beauregard device be made to function as the structure on which the claim is drawn functions.

Now, there is a securing means for retaining the cable in engagement with the jaw, but the jaw defined in Claim 24 is a specific type of jaw, and that specific type of jaw is not shown in Beauregard.

And Beauregard does not show the pair of longitudinally directed spaced apart arms 39, and the annulus 41 called for as elements 3 and 4 of that claim; and there is nothing in Beauregard to perform the function or accomplish the result of elements 3 and 4 of that claim.

Q. Mr. Donnelly, then in Plaintiff's Exhibit 25, in your resumé of Claim 24, do you mean then by the string of No's that are listed opposite each element under the Beauregard patent that no structure anticipatory of those elements is shown in this patent?

A. I mean more than that. Not only are those elements not shown, but there is nothing shown that can be so modified as to perform the function and accomplish the result, nor is there any element shown that is intended or adapted to perform (65) the function and result.

Q. Mr. Donnelly, is there any structure shown by the Nieman patent which is anticipatory or teaches or suggests any of the claimed elements of Claim 24?

A. Well, the Niemann patent is similar to this patent shown in Exhibit 10, Plaintiff's Exhibit 10, in which the lower jaw extends forwardly from the handle and serves alone as a conductor, and of course, that jaw is solid, it is not tubular. So it could not meet the terms of the claim because it is not a tubular jaw, and there is no place for reception of the cable at the location of the electrode, which electrode engages the holder at the forward end, and the cable is fastened at the rear end. Consequently, there is no means for securing the cable in engagement with the jaw. The jaw is at the forward end and the cable is secured at the rear end. And there is no longitudinally directed spaced apart arms as called for in that claim as elements 3 and 4.

So I would say that the elements called for in that claim are not present in Niemann, nor is there shown in Niemann any structure which can be modified or adapted to perform the function or accomplish the result, nor is it intended or adapted to perform the result.

Q. Mr. Donnelly, I direct your attention to the Smoot et al. British patent, which was Plaintiff's Exhibit No. 4, and I ask you if there is any structure taught by Smout which (66) would aid one skilled in the art, to teach or suggest to him how to make the structure defined in Claim 24?

A. At first blush, it would seem that the British patent most closely approaches the structure in issue in this case. I say, at first blush, and the Patent Office recognized that because in the first action they used the British patent as a citation against the claims, which was wrong, and in the second action and thereafter they did not assert this British patent against this application.

Now, in this British patent, there is no jaw having a flattened upper peripheral surface adjacent to its forward end for engaging an electrode with the forward end being tubular for the reception of an electrode.

And there is no securing means for securing the cable in the jaws. I don't know how Smout secures the cable in the jaws. He may have a solid connection for all I know, but he has not any means for securing it shown in the drawing; and in the drawing he does not show a pair of longitudinally directed spaced apart arms for engagement rearwardly of the tubular portion adapted for insertion in the tubular handle, nor a connecting member for connecting these rear ends.

Now, when he doesn't have those parts, those two arms or the annulus connecting them or the equivalent of it, he has nothing to prevent fraying of the cable, but this construction that he has got is one in which the fraying of the (67) cable is intensified.

Now, in ordinary welding, the welding operator will change electrodes, oh, 15 or 20 seconds, it will take him 15 or 20 seconds to burn up an electrode, and when he does that, he flexes the jaw and throws the other electrode out and puts in a new one.

Now, if you do that with the Smout device every 15 or 20 seconds, and you are bending the bared ends of those cables up there, you are going to fray that cable so that it is not going to last very long.

Furthermore, Smout could not maintain a balance in a holder of that type because his forward end is top-heavy.

Q. Mr. Donnelly, I direct your attention to your breakdown of Claim 26, which is page 2 of Plaintiff's Exhibit No. 25, and I ask you to tell the Court, if you will tell the Court what is the difference between Claim 24 and Claim 26?

A. Claim 26 differs from Claim 24 in that elements 5 and 6—

Q. You mean that claims—

A. Wait a minute, now.

Now, claim members 5 and 6 are added. Claim 5 defines the connecting member—

Q. You mean element 5?

A. Element 5 has been added, elements 5 and 6 have been added.

(68) Element 5 defines element 4 shown in Claim 24 as engaging the inner surface of the handle, and further identifying it as a handle supporting member.

Element 6 calls for the annulus at the forward end. That is member 34 shown in Figure 10 of the application in issue and this is defined as also engaging the handle, so that there is no flexing of the handle relatively to the holder. In other words, the holder is held concentric in the handle.

Q. Then the only difference between Claim 24 and Claim 26 relative to an application of the prior patents against Claim 26 would be considering the application of the prior art patents against elements 5 and 6?

A. That is correct, and those elements are not present in either Beauregard, Niemann, or Smout, nor is there anything in either of the three references cited which can be modified to perform the function or obtain the result set out by those two defined elements.

Q. Now, then, Mr. Donnelly, I refer your attention to page 3 of Plaintiff's Exhibit 25, wherein you have broken down Claim 45 into these various elements.

Now I ask you, if you will, to tell us what the function of each of the elements are in this claim structure 45?

A. Well, in Claim 45, there are two elements. One calls for a tubular handle supporting body having a passage formed (69) therethrough from end to end. That is referring to the metal part of the holder. It is tubular, and it has a handle supporting body, and it has got a passage therethrough from end to end. Then the body at the forward portion thereof is flat on its upper periphery to provide an electrode engaging surface. Those are the elements.

Now, the function. They support the handle and also engage an electrode which can be pressed against the same.

Q. Mr. Donnelly, now does Claim 24 and 26 read on both species of plaintiff's holders as shown by Plaintiff's Exhibit 13 and Plaintiff's Exhibit 22?

A. Yes, and Plaintiff's Exhibit 13. It reads on all of the plaintiff's holders that they have manufactured, embodying the issue in this case.

Q. Claims 24 and 26?

A. Yes. They are done by the doctrine of equivalents.

Q. Will you tell the Court whether Claim 45 reads on both?

A. It does.

Q. Being exhibits, Plaintiff's Exhibits 22 and 13?

A. It does.

Q. I refer your attention, Mr. Donnelly, to page 4 of Plaintiff's Exhibit 25, in which you have broken down Claim 46 into its various elements, and I ask you what is the difference between Claims 45 and 46?

(70) A. Element 3 of Claim 46 has been added to elements 1 and 2 of Claim 45.

Q. Is this additional element 3 of Claim 46 taught or suggested in the Beauregard, Niemann and Smout et al. patents?

A. No, because they do not have a handle supporting body, a tubular handle supporting body, which has a flat upper surface at the forward end thereof.

* * * * *

(71) Q. Mr. Donnelly, before the noon recess you were telling the Court the difference between Claim 46 and Claim 45, I believe, or had you finished such discussion of Claim 46? I am not sure.

A. No, I had not finished. Do you want me to finish now?

A. Yes, Mr. Donnelly, will you finish and tell the Court the difference between Claims 45 and 46?

A. Well, as I mentioned, Claim 46 has the added element of 43, and this added element sets out the forward portion of the body at the upper side of the location of the surface, and that is the surface where the electrode engages.

Q. Could you point out this upper surface on one of the models for the Court, to show which is thicker in the cross section or part?

A. Well, it shows in Plaintiff's Exhibit 13. The upper portion is thicker than any other portion around.

(72) Q. Why is that thicker?

A. Well, it is thicker because that is the wear portion, and you want it that way in order to maintain the cable concentric to the handle.

Q. Mr. Donnelly, I direct your attention to the last claim, Claim 47, which is shown on page 5 of Plaintiff's Exhibit 25 and ask you to tell the Court the difference between Claim 46 and Claim 47.

A. Claim 47 is the same as Claim 46, except that it has the element 4 added, and that element reads: "And said flat surface being of less width than the diameter of the forward portion of said body."

By that we mean, the flat surface against which the electrode engages is narrower than the diameter of the body.

Now, the purpose and function of that is this: Most of these holders, as a matter of fact about 95 percent of the holders used today, are insulated holders, and in the insulated holder they use an insulation that covers the jaw, and as shown in Exhibit 13, the insulation is held on the jaw by means of a screw.

Well, that screw is alive, and sometimes with some users it is objectionable because they might get a a short on it.

Now, Claim 47 sets out this difference in width in that the insulation which is covering the lower jaw of Exhibit (73) 22 can slip on and off by moving longitudinally, forward and rearwardly, but cannot come off extending downwardly, so that actually in the holder defined in Claim 47, the insulation is held on without the presence of a screw. It is not necessary, and that is the function and result which is obtained by that element in that claim.

Mr. Mentag: Your Honor, that concludes the discussion of the claims, and I would like to go to the file wrapper, but before I do, I find that I did not offer in evidence Plaintiff's Exhibit No. 24, which is a photostatic copy of the patent drawings and application, and I would like to offer it at this time.

The Court: Very well.

(The document was received in evidence and marked Plaintiff's Exhibit No. 24.)

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Q. Mr. Donnelly, can you tell the Court how the Patent Examiner rejected Claims 24 and 26 in the Patent Office action No. 3, the first Patent Office Action?

A. In the first Patent Office action, they were rejected (74) on the British patent and the patent to Niemann.

Q. Well, then, will you tell the Court how these Claims 24 and 26 were rejected in the succeeding actions, of which there were three more?

A. Then an amendment was filed in the succeeding action, and Claim 24 and 26 were rejected on the patent to Niemann, considered together with the British patent and Shellbarger.

Q. That was in the Patent Office action No. 2?

A. That is right.

Q. What rejection did the Patent Office Examiner employ or use in the rejection of Claims 24 and 26 in the third Patent Office action?

A. In the third Patent Office action, Claims 24 and 26 were rejected on the patent to Beauregard, Beauregard alone.

Q. In other words, the Patent Examiner in the third action than dropped the application of the British patent against Claims 24 and 26?

A. That is right. It appears in the file wrapper at page 42. That is Exhibit 1.

Q. When did the applicant add Claims 45, 46, and 47?

A. Responding to their last action just referred to, an amendment was prepared adding Claims 45, 46, and 47; and then an action was taken by the Patent Office, which is known (75) as Paper No. 9; and it appears in the file wrapper, Exhibit 1, at page 47.

In that action, Claims 24 and 26 were rejected on the patent to Beauregard, either alone or taken with Niemann. The British patent again was not used.

Claims 45 and 47 were rejected on Beauregard alone.

And that was a final rejection from which an appeal was taken to the Board of Appeals.

* * * * *

Q. Did the Examiner cite the British patent in his answer to the plaintiff's appeal to the Board of Appeals? Did he cite the British patent against the claims?

A. He did not cite it against the claims. He did refer to it, however.

* * * * *

The Witness: It is stated in the action, the reason for it. This British patent is called to attention because (76) it shows a vertically sized cable located in the jaw and because the applicant by his suggested amended claims is attempting to stress the location and extent of the current conductor in relationship to the jaw; and consequently, the Examinenr referred to it in view of the fact that in the notice of appeal three other claims were suggested as being allowed.

Q. Then the Patent Examiner's answer did not specifically apply the British patent against Claims 24, 26, 45, 46 and 47?

A. He did not. He did not attempt to.

Q. I direct your attention, Mr. Donnelly, to page 64 of the file wrapper.

A. Page 64?

Q. Yes, which is part of the Examiner's Answer to the appeal to the Board of Appeals, and specifically, line 24 thereof, wherein the Examiner stated, and I quote, and this is lines 21 to 24, page 64 of the file wrapper:

> "The jaw face is separable in Beauregard, the jaw 3 is separable in Beauregard, which permits the jaw to be of highly electrical conductive material, whereas the remaining portion may be of low heat conducting material. The rearward portion is hollow and perforated in Beauregard."

(77) I ask you, Mr. Donnelly, is the rear portion of the lower jaw of Beauregard perforated or is it the handle that is perforated?

A. That is not the jaw 3. It is the jaw 7, and the part 3 is not perforated, sir.

Q. What part of the Beauregard structure is perforated?

A. Well, the handle has holes, 23 in it, but they do not extend through the metal part which is within the handle; and consequently, the Examiner's statement on page 64 of the file wrapper is in error.

Q. I direct your attention, Mr. Donnelly, to plaintiff's Exhibit No. 2, which is the Beauregard patent, and specifically to lines 25 through 31 on page 1 thereof, and ask you to tell the Court if in those lines in the Beauregard patent, does Mr. Beauregard say anything about perforating his lower jaw?

A. He does not.

Q. What does he say?

A. He says he perforates the handle to allow air to circulate through the handle, for cooling the handle, but it has nothing to do with the lower jaw.

Q. Does he say in those lines anywhere as to where the perforation in the handle starts?

A. Beyond the end of the metal part.

Q. Then the lower jaw then could not possibly be perforated, could it?

(78) A. It isn't.

Q. Well, then, Mr. Donnelly, would you say that there is any teaching or suggestion in Beauregard as to how you could connect some alleged perforations to make slots as suggested by the Examiner and the Board?

A. No, there is not; in Beauregard there is not. But the formation of slots in itself could be made by anyone skilled in the art if he desired to do so.

Q. Mr. Donnelly, I direct your attention to the Board of Appeals decision and specifically that part of it which is shown on page 76 of the file wrapper, and I ask you if you will tell the Court what references were cited thereon by the Board as being relied on in rejecting the claims of this application?

A. Page 76 says the references relied on are Niemann, Beauregard, and Smout, et al. the British patent.

Q. Will you tell the Court, then, if the Board relied on the British patent in rejecting the claims?

A. They did not, and that is shown in the Board of Appeals decision, beginning on page 76 of the file wrapper, Exhibit 1.

Q. Mr. Donnelly, I refer your attention to page 79 of the file wrapper, which is also part of the Board's decision, on this appeal to the Board of Appeals, and I direct your attention specifically to line 2 of page 79 of the file wrapper, wherein it says, and the Board is talking about the (79) British patent at this point, and it says that the welding member cables pass through the hollow jaws f1 aand f2 as as shown in Figure 1 of the Smout patent.

Now, I ask you if the cables of the Smout patent pass through both those handles?

A. He says they pass through the hollow jaws f1 and f2. They pass through the handle. The jaws f1 and f2 are not hollow.

Q. Aren't the handles marked f-1 and f-2, and not the jaws?

A. I don't know. I want to check it myself.

He indicates that it is the handle, as indicated by numeral f-1 and f-2, and the cable does pass through the handles.

Q. But the cables do not pass through both f-1 and f-2, do they? They pass through only one?

A. Only through f-2.

Q. Mr. Donnelly, I refer your attention to page 78 of the file wrapper, to the first three lines thereof, and I ask you to tell the Court what is stated therein and if it is true.

A. Page 78 of the file wrapper?

Q. Yes, sir.

A. It says: Claims 24, 26, and 45 to 47 stand rejected as not patentable over Beauregard with reference to Niemann (80) and Smout et al.

Q. Did the Examiner finally reject these claims on a combination of elements, including Smout?

A. No, he did not. That statement by the Board of Appeals is in error.

Q. Mr. Donnelly, I direct your attention to page 79 of the file wrapper, lines 7 through 10, and ask you to tell the Court what those lines include, and if that statement is correct.

A. What lines?

Q. 7 through 10.

A. Well, it says: The Examiner takes the position that it would be uninventive to modify the structure of Beauregard in view of the secondary references to meet the terms of the claims.

The Board did not take that position at all.

Q. Well, there were no plural secondary references in the Examiner's rejection?

A. That is right. There is only one secondary reference. Niemann and Beauregard were the two references.

Q. I refer you to page 80 of the file wrapper—

A. That is Exhibit 1?

Q. Yes, Exhibit 1, lines 9 and 10 thereof, and in these lines the Board is discussing the structure of Beauregard, and I ask you to tell the Court if their discussion of the (81) structure of Beauregard is correct in those lines 9 and 10 of page 80?

A. He says that Beauregard discloses an electrode holder having a jaw with a flattened upper peripheral surface adjacent its forward end, and that the forward end is tubular.

That is not so. It is not tubular.

Q. What is the forward end of Beauregard's lower jaw? What is the shape of it? Is it hollow?

A. It is solid with a recess in its upper face.

Q. Can you get a passage of air through?

A. No, sir, no air can go through there. It is sealed up entirely.

Q. Where is the welding cable connected to the jaw?

A. It is connected toward the rear, but Beauregard doesn't show the proper connection of the cable because he is showing a connecting lug on the cable here, and you can't have a connecting lug on a welding cable, so that actually he doesn't show a welding cable connected. It shows a cable connected, but it is not a welding cable.

Q. Mr. Donnelly, on the same page of the file wrapper, Plaintiff's Exhibit No. 1 page 80, I direct your attention to lines 15, 16, 17, and 18, and ask you if the interpretation of the Beauregard structure and the opinion of the Board in those lines as to how they could modify Beauregard, whether (82) or not that is correct, in view of the Beauregard structure, lines 15 through 19?

A. Well, he says: "This reference, that is the Beauregard patent, does not disclose a pair of arms connected at their ends as recited in this claim. However, it would involve only choice or design to place two or more continuous slots in the rearward portion of Beauregard's members 2-3 by connecting the apertures 23 since this modification changes neither the function nor results obtainable from the reference device. With this modification the parts of members 2-3 of the reference between the rows of apertures 23 will form arms and the material on the holder to the rear of the apertures will be a connecting member."

The arms he refers to now are the arms shown in the application in issue, which are metal arms 39, and form a part of the metal structure, and which are also illustrated in Plaintiff's Exhibit 13 in this case. That is the metal part of the holder. Those are the arms he is referring to.

Now, he says that if you connect the slots 23, you will get the equivalents of those arms, the openings 23.

The openings 23 are not formed in the metal part. They are formed in the fiber part, which is the handle. If you connect two of those openings in the handle, you will have slots in the handle, but you won't have any slots in the metal part, and you won't have anything in the metal part at (83) all which corresponds to the arms in question, because you will not thereby modify in any manner the metal part of Beauregard.

Q. Mr. Donnelly, I refer your attention to page 81 of the file wrapper, which is Plaintiff's Exhibit 1, and specifically to the last two lines of page 81 and the first two lines of page 82, and ask you if the claims of the application there drawn do set forth such things as dimensions and heavy load conditions, as cited in those four lines?

A. He says this arrangement, as referred to above, on page 81 of the file wrapper, Exhibit 1, and its advantages however, is based on the assumption that the holder and cable are made of materials having different resistivity, different dimensions, and are operated under heavy load conditions.

Well, any one skilled in the art knows that the holder is made of metal having different electrical resistance than the electric cable; and they also know that since they are made of different metals they are of different dimension, the holder being much larger than the electric cable.

What he means by operating under heavy load conditions, I don't know. In welding, you are operating under heavy amperage, but low voltage.

Q. Why didn't you put dimensions in your claims when you drafted them?

A. Why didn't I?

(84) Q. Yes.

A. Well, ordinarily you don't put dimensions in claims. You claim the structure, not the size of the structure. The only time you specify dimensions, and that is very, very rare, is when the dimension is critical.

Q. Mr. Donnelly, I have two more points on this file wrapper, one at page 82, lines 13, and that is Plaintiff's Exhibit 1.

What was the Board referring to when they were referring to—excuse me, it wasn't line 13, but it was line 16.

What was the Board referring to in the statement, one skilled in the art would be cognizant of the basic relationships that they are talking about there, what do they mean by such a statement there, about these basic relationships, involving the resistance of materials and so forth?

Why is that part relevant to the patentability of these claims involved?

A. We knew that the resistance of the metal was causing the heat of electrical resistance. That was well known, and every manufacturer knew that, and yet they had no way of solving the problem.

Q. One last question on this file wrapper, Mr. Donnelly. On page 83 of the file wrapper, Plaintiff's Exhibit No. 1, line 4, the Board intimates that the desired result, the coolness, (85) could be obtained by the Niemann structure.

What are your comments on that statement, sir? In other words, could Niemann obtain the coolness desired with the Niemann structure?

A. Well, he begins here on page 82 of the file wrapper by saying: "By juggling these factors, one skilled in the art starting out with a specified operating temperature for the welding tool could obtain this result by use of a holder having a certain resistivity and by adjusting the ratio of the length of current path to area conducting current and radiating heat to obtain the desired result."

Well, we start, to begin with, that you can't start out with a specified operating temperature because you don't know what your operating conditions are.

If you are using a ⅛ inch rod, you have a different operating condition from a temperature standpoint than if you are using a 3/16 inch rod, or a quarter-inch rod, or a ⅜ inch rod, and you can't adjust the length of the current path at all. It is an impossibility.

He says that can be done by modifying Niemann. Well, he does not show how it can be done, and after a little over ten years experimentation, we could not find it.

I may say that this patent, the Niemann patent, issued in 1932, we had this Niemann patent, and we had copies of all patents issued on electrode holders, including the three (86) patents in this case. We had them all before us.

We knew what was before us, and there was nothing in the prior art to teach us what to do.

Q. Mr. Donnelly, do you think from all your experience that you are an ordinary person skilled in the art? An ordinary mechanic skilled in the art?

A. I think I am skilled in the art. I think so. I think the trade recognizes it, and my competitors recognize it, so much so that they are continually copying our improvements.

Q. By your previous statement, then, do you mean that by having Beauregard and Niemann and the Smout patent before you that you or your son, at the time he invented the holder in question, that those three patents would not have taught you to make the holder in question?

A. I don't know what they would teach him, but I say in my opinion there is nothing in those three patents to teach a solution of the problems involved in the four points mentioned, namely, heat, weight, balance, and fraying of the cable.

And furthermore, there is nothing in those patents to teach that, nor are they adaptable to teach it, nor can they be so modified to accomplish it.

In order to do that you have got to get away from them entirely. You have got to get an entirely different (87) construction.

Q. Mr. Donnelly, I just want to clear up a couple of points here. You said that a number of these holders and exhibits were made by the Detroit Electrode Holder. But I find Exhibit 12 here, which says it is made by the Thermax Equipment Company.

A. That was a subsidiary of the Detroit Electrode Holder Company.

Q. I have a similar question then on Exhibits 22 and 23, Plaintiff's Exhibits 22 and 23. On the handle of these exhibits they both say Royal. What do you mean by that?

A. That is a trademark under which the holder is being sold by the American Welding and Specialties Company.

Q. Mr. Donnelly, throughout the course of these ten years, did you spend ten years, or did your son spend ten years trying to develop this one holder in this case, plus the others that you have shown us today?

A. We were trying to develop a holder, to get a holder that was satisfactory to solve the problem to meet the objections and in doing that we developed different types of holders some of which I have shown you here today.

But those types I have shown you are only those that finally met with some degree of success. We have experimented and dealt with many, many other types of holders, which we later scrapped.

(88) Q. Mr. Donnelly, with regard to the element of commercial success now, what successes have the holders of the present invention had on the market as far as coolness and weight are concerned?

A. Remarkable success. As a matter of fact, as I mentioned, you don't have to sell your holder, all you have to do is to show it because the construction of the holder indicates to a welding engineer the advantages just by looking at it; and I say it has had remarkable success. We have sold thousands and we are still selling them.

* * * * *

Q. Mr. Donnelly, I hand you Plaintiff's Exhibit No. 28 for identification and ask you if you can identify that exhibit?

(89) A. It is a letter from the Metal and Thermit Corporation, reporting on a test of a holder which we submitted to them, the holder embodying the structure of the holder in issue.

* * * * *

(90) Q. Mr. Donnelly, this Harnischfeger Corporation that is selling the holder embodied in Plaintiff's Exhibits 22 and 23—

* * * * *

Q. Is this a company of small size or large size?

A. Well, Harnischfeger is one of the largest manufacturers and dealers and distributors of welding equipment in the world. They make their own welding machines, and they have eight or ten plants.

* * * * *

(91) *Cross Examination*

Q. Does the witness have a copy of the specification and original claims of the application?

A. That is in the file wrapper, Mr. Kreider. I don't have a copy of the file wrapper here.

I have it now, Mr. Kreider.

Q. You spoke of the plaintiff's holder having good balance. Can you point out any discussion of this feature in the application which I believe you said you prepared?

I might save time by asking at the same time another question and have you consider them both.

You also spoke of breaking and fraying of the cable at the connection being less frequent in plaintiff's device.

I would also like to know if you can point out any reference to that in the specification for the original claims?

A. I think inferentially, Mr. Kreider, on page 4 of the file wrapper balance is referred to, and I say: Consequently, by bringing the cable into engagement with the lower jaw at that portion which is engaged by the electrode, the travel of the current through metal of lower electrical conductivity than the cable itself is shortened. Experience has shown that this results in a more efficient electrode holder in operation, and I am not talking about cooling there, (92) I am talking about more efficient holder operation.

Q. That is your answer to the question?

A. Part of it.

Q. Of balance?

A. Part of it. I am picking out now where it is referred to.

Then I go on and say: And one which operates cooler.

Q. Where does it say that?

A. Just continuing the same sentence, on the same page of the file wrapper.

Do you want me to read it?

Q. No, you have answered that question, I believe. Up to this point you are still examining the file wrapper?

A. Now, you are talking about fraying of the cable. That is inferentially set out on page 5 of the file wrapper, beginning with the paragraph that begins in the middle of the page.

Q. Where in that paragraph?

A. Well, all the way through. I said "inferentially".

Q. Inferentially?

A. Yes. It is inherent in the structure of the holder as it is described in that part of the specification.

Q. Well, you have completed your answer then?

A. We are talking about the fraying of the cable and (93) the balance, aren't we?

Q. Yes.

A. I would say that is all that is expressed and set out, from the nature of the invention as described and set out in the specification, it is apparent that those results are obtained and the holder does function in that manner.

Q. That completes the answer, then?

I understood you to say that of all the physical exhibits introduced on behalf of the plaintiff, it is only those designated as 11, 22, and 23 which you described as being in accordance with the plaintiff's disclosure; is that right?

A. I don't think so.

Q. Exhibits 11, 22, and 23?

A. I don't think so.

Mr. Mentag: 13, 22 and 23.

Q. (By Mr. Kreider): I beg your pardon, I meant 13, 22, and 23. Will you please change the question.

I believe you indicated that Exhibit 13—

A. I have 13 in front of me.

Q. 13, 22, and 23 were the ones?

A. I have 22 and 23.

I don't know whether there is another one or not, Mr. Kreider.

(94) Q. I believe that they are the only ones you describe?

A. Well, perhaps.

Q. Now, I ask you: In these three Exhibits, 13, 22 and 23, was the lower jaw made of copper?

A. The lower jaw?

Q. Yes. Or was it made of brass?

A. Well, brass is a copper alloy.

Q. That is correct, but there is a difference.

A. Made of brass.

Q. You said, did you not, in your testimony, that brass is a low conductivity metal?

A. That is right; 40 percent is about as high conductivity as you can get with brass.

Q. Copper is a high conductivity?

A. 100 percent. They use copper as a norm from which to figure. Copper is 100 percent, brass gives you 40 percent conductivity.

Q. That is enough answer to that.

Now, will you refer to Exhibits 22 and 23?

A. Yes, sir.

Q. The insulating member over the front ends of each of those has a wall portion that extends over the front end; is that correct?

A. Yes, but it has an opening in it.

Q. That is going to be my next question.

(95) Each of them has a wall portion and in each of them that wall portion has an opening in it?

A. That is right.

Q. Now, referring back to the application, particularly page 5 of the application, the only paragraph beginning on that page, page 5, which begins just above the center.

In that paragraph, do the first two sentences in this paragraph describe the real part of the joint structure of the application as including spaced apart ribs 39 and connected by an annular member 41?

Those first two sentences do decribe that, do they not?

A. Yes, they do.

The first two sentences?

Q. Yes.

Does the third sentence indicate that this rear part of the jaw structure may be formed as a tube, and slots formed in the tube to provide ribs 39?

A. When you do that, you have got exactly the same thing.

Q. That is not the question I asked.

A. Yes, it says that.

Q. Now, the next or fourth sentence reads as follows: If desired, the formation of the slots may be dispensed with as the slots are used for ventilation and also to reduce the (96) weight of the structure.

Does this indicate the rear portion of the jaw between the portion 34 and the rear portion 41, the two annular portions as shown in Figures 8 and 10 of the drawing may be made up of a solid tube portion, instead of comprising two ribs 39 as shown in the drawing?

A. That is what it says.

Q. Please refer to Figure 5 of the application drawing.

* * * * *

Q. Now, this Figure 5 shows the bare end 26 of the conductor or cable secured to the front end of the jaw of the plaintiff's device; is that correct?

A. That is correct.

Q. Now, isn't it true that the cable ends 26 and the presser clip or clamp 30 obstruct the passage in the front end of the holder so that the circulation of air therethrough will be impeded?

A. Well, it clogs some of the passage, but there is a clear passage through there for air.

Q. It clogs a pretty large part of it?

A. It clogs a large part of it, but there is a clear passage through there for air.

(97) Q. Now, if a larger cable were used and a larger cable could be provided and gotten into there, would it clog even more of it?

A. No. If you use a larger cable you are going to have to build the holder larger, and you are going to have to build a bigger socket.

Now, these two holders we have here, one is for a 00 cable and one is for a 000 cable. If you build the cable larger, you have to build the holder larger and make the socket larger.

Q. Why do you have to build the cable larger? If you put a larger cable in there and use the same current, the same welding current, there is no greater current to be taken care of, is there?

A. How are you going to get the cable in if you don't build the socket larger?

Q. Well, I am talking about larger than in the drawing. The plate 30 is spaced a fair amount from the bottom. We could make it a little bit larger here, not a lot, but somewhat larger.

A. You can make it some, but not very much.

Q. Some larger?

A. You still have to have a space there because that pressure clip has got to come up in response to the pressure of those screws 29. It has got to move up from the bottom (98) of the bore.

Q. Now, can you point out anywhere in the application where it is disclosed that the size of the bore and the parts of the plaintiff's device are such that air can circulate through the front end of the lower jaw, between the front end and the shoulder 34?

A. I think you will find that on page 8 of the file wrapper, where we are talking about the handle.

Q. Would you point it out or read the portion on page 8 that you—

A. The entire page, Mr. Kreider, when you consider the structure that is illustrated.

Q. No. Just where in there does it say that air can circulate between the front end of the jaw and the annular member 34?

A. Now, in considering answering your question where it is disclosed that air can circulate, you can't possibly take the specification apart and take this part or that part, but you take the specification as a whole, and it is clearly shown in Figure 5 that there is a space for circulation of air.

Q. But you can't point out any words in the specification that say that, that there is a space for circulation of air through that part of the jaw?

A. We don't say that, but it is there. It is disclosed (99) in that application.

Q. Disclosed how? You say it is disclosed—

A. Disclosed by the drawing.

Q. That is enough answer. There is no use taking any longer.

Now, will you please refer to the last paragraph on page 7 of the application.

It is not disclosed therein that solder may be poured in the opening 61 as shown in Figure 15 to serve as an additional means for connecting the cable to the jaw?

A. It does say that.

Q. Isn't it true that such use of solder as a means for connecting the cable to the jaw would interfere with the circulation of air to the front portion of the lower jaw?

A. When you make this connection a solder connection instead of a mechanical connection, you are not getting the functional results of the holder with the mechanics.

Q. That is not exactly responsive.

I say: Isn't it true that such use of solder as a means of connecting the cable to the jaw would interfere with the circulation of air through the front portion?

A. Yes. It might clog or block the entire thing, and it might not. It might still leave a passage.

Q. But it might clog it all the way?

A. It might block the entire passage.

(100) Q. Now, in Figure 13 of the drawing is shown a front and insulating member which has an end wall 62; is that correct?

A. Yes, it does show it.

Q. Wouldn't this front wall 62 over the end of the jaw prevent and interfere with the circulation of air through that front portion of the jaw?

A. It might.

Q. As a matter of fact, in your Exhibits 22 and 23 you put a hole through that front end, didn't you?

A. Yes, sir, for that very purpose, to allow the circulation of the air through there.

Q. Now, also, wouldn't this front end 62 prevent or interfere with the radiation of heat from the front end to the conductor?

A. It might. I might say, however, that Fig. 13 is not innvolved in the claims,in issue in this case.

Q. That is not the question, Mr. Donnelly. Will you please refer to the drawing of the Beauregard patent, that is Plaintiff's Exhibit 2, I believe, which is Item A in the Patent Office folder.

Do you agree that the cable 8-a shown in Figures 1 and 2 of this patent can be made of copper?

A. I don't know because it doesn't disclose a welding cable.

(101) Q. You say that because of the size?

A. No, because of its construction, too. He has got an eyelet on the end.

Q. Wouldn't anybody trying to use the Beauregard patent realize that you have to have a cable that will carry a welding current in there?

A. Well, I don't know, because as far as I know—

Q. Wouldn't you know it from your experience?

A. Nobody would use a holder such as Beauregard shows. Nobody ever did as far as I know.

Q. That is not the question.

The question is if you were told to use the Beauregard holder, wouldn't you use a cable in there that would carry a welding current for the size of the welding you were going to do?

A. If I was a welder—

Q. As one experienced in the art?

A. If I was a welder, I would quit my job. I wouldn't use a holder like Beauregard shows.

Q. You are not answering my question.

A. You asked me if I would use it, and I said, No, I wouldn't use it because it is not usable.

Q. Will you please observe the block 7 in Beauregard?

A. Yes.

(102) Q. The upper surface of that is adapted to engage an electrode, is it not?

A. It is intended for that purpose.

Q. Well, that upper surface fits within the language "flat", does it not?

A. It is flat.

Q. Well, that block is made of copper, is it not?

A. I don't know what it is made of.

Q. I will refer you to the claim of Beauregard, and particularly to Column 3.

A. It says it in Column 3 there.

Q. That is on the second page. It is in the claim.

A. That is one claim. It says it is a block of copper, and that you can't use in an electrode holder.

Q. You mean that you would not—prefer not to use it?

A. You can't use it in a continual welding operation if you are using a copper jaw.

Q. Because it is not a hard material, that is all?

A. It is a hard material, and it will not stand it.

Q. Now, in this Beauregard patent they have disclosed no part of harder and less conductive material?

A. They have what?

Q. The paths for the current to the welding jaw, or to the face of the welding jaw in Beauregard, does not include any element of high electrical resistance, such as a copper (103) member?

A. I didn't get your question, Mr. Kreider. I am sorry.

Q. The paths of current from the conductor, say, from the source to the conductor 8-a, to the face of the block 7, which engages the electrode, is continuously of copper, isn't it? If we assume that the conductor 8-a has a copper conductor?

A. That is right.

Q. Please refer to Figure 2 of the Beauregard patent. You will note that the metal jaw portion 3 is covered by an insulating member designated 2; is that correct?

A. That is right, sir.

Q. Now, you will note the opening in the upper part of the insulating handle 2 with the designation 23 on it, in Figure 2?

A. Yes.

Q. Now, let us imagine a vertical line in Figure 2 passing through the left edge of this hole designated 23, and a second vertical line, say, a half inch to the left of it, spaced about a half an inch from it.

Wouldn't the space between these two lines constitute an annulus, a portion of the—

A. I don't get your structure that you defined. I am sorry.

(104) Q. I am taking a vertical section through Figure 2 with the right edge of that section passing through the left edge of the hole designated 23, and then a second line spaced to the left of it, by maybe a half an inch or so, and between there will be a section of the tubular portion of the Beauregard member 3; is that right?

A. No, sir. You have a ring separate from the rest.

Q. You have a ring, that is right.

A. Separate from the rest.

Q. Well ,it is separate by the lines, that is all.

A. It is separate. You formed a ring so you separated it.

Q. Oh, I didn't say cut it. I said just imagine lines drawn on the drawing. I didn't mean to cut it. Do you see what I mean now?

A. No, I don't.

Q. Well, let us put it this way: You said, referring to your drawing, the drawing of the plaintiff's application, and perhaps Figure 5 is best.

You have an annular member 34 at the front end of the member 21, and the annular member 34—

A. 34 did you say?

Q. That is right. That fits aganst the insulating handle 21, against the inner surface of it; is that right?

A. Yes; that shows it better, I think, in Fig. 9, Mr. Kreider.

(105) Q. Figure 9 doesn't show the insulator on it.

A. Oh, I see.

Q. And referring again to Figure 5, the annular member 41 has its outer surface engaging the inner surface of the insulating handle?

A. That is right.

Q. Now, you mention that as being an advantage? It centers and holds the parts assembled?

A. That is right.

Q. Now, let us refer back to the Beauregard drawing. Isn't the insulating tube 2 in Beauregard similarly fitted against the outer surface of the metallic jaw portion 3, over a considerable portion of the length there?

A. Yes, sir.

Q. Wouldn't that give the center and hold the two parts?

A. I think so.

Q. The same way as in your device?

A. Not the same way, but I think so; not the same way.

Q. It will hold it in an equally rigid condition?

A. Well, I would say so, the same as these other holders have the handles mounted on it.

Q. I would like you to turn to page 3 of the Donnelly application. You will note that the portion beginning seven lines from the bottom describes the shape of the surface of (106) the Donnelly device at the location that is adapted to engage the electrode.

A. All right. Go ahead.

Q. It indicates that: In the form illustrated, the outer surface of the major portion of the body 24—that would be of the tube there—is curved and struck on an arc and the inwardly inclined or curve surface 26 begins at a point above the diameter of the arc?

A. Yes, sir.

Q. That is a description of the surface adapted to contact the structure at the end where it is adapted to contact the welding electrode, isn't it?

A. No, sir.

Q. What is that a description of?

A. That is a description of the bore proceeding downwardly from the electrode-engaging surface.

Q. That is right.

Now, referring to Claim 46, and you could use Plaintiff's Exhibit 25, the element designated 3—it is Claim 47, I mean, and the portion designated 4, the last portion of the claim states: And said flat surface being of less width than the diameter of the forward portion of said body.

A. Yes.

Q. Isn't that the description of that structure that is a portion of page I refer to?

(107) A. That is right?

Q. Well, now, let us read the last sentence on page 3, which reads: It is to be understood that this particular shape is but one form as the functional characteristics may be obtained in other forms, as will clearly appear from the description which proceeds?

A. That is right.

Q. That is just a preferred form?

A. You might make that triangle-shaped instead of curve or linear-shaped, you know, and you will still be able to get the same results. You hold the welding insulation on, you hold the insulation on without the need of a screw. It could be.

Q. Now, in discussing the claims, I got the impression that you sometimes attempted to limit the word "jaw" to the forward portion of the lower jaw member, the portion that is just under the part adapted to engage the welding electrode. But I would like you to refer to page 2 of the specification of the Donnelly application and referring to the definitions of Figures 8, 9, and 10, the definition of Figure 8 is a side elevational view of the lower jaw used in the invention.

Now, Figure 8, as well as Figures 9 and 10, show the complete unitary member, including the front portion of the jaw and the back portion of the jaw; is that correct?

A. Yes.

(108) Q. The term jaw then, from the specification appears to be applicable to the entire element, rather than just to the front end?

A. No, not necessarily.

Q. The specification calls the entire element the lower jaw, doesn't it?

A. Where?

Q. In the description of Figures 8, 9, and 10?

A. In the specification, it does not. In the specification, it sets out clearly that the jaw portion is.

Q. That is the specification, a part of the specification?

A. It is a part indicating the figures.

Q. You point out where in the specification it indicates that the jaw shall be limited to just the portion that contacts or is adapted to contact the welding arc?

A. You will find that on page 3.

Q. Where?

A. Beginning in the second paragraph down there, "the lower jaw"?

Q. How does that indicate that the lower jaw does not include the entire structure shown in Figures 8, 9, and 10?

A. On page 5, in the middle of the page, it says: Extending rearwardly from the jaw-carrying body 24 are the spaced-apart ribs 39.

(109) So the jaw-forming body 24 is the part at the forward end, extending rearwardly from the jaw-forming body 24 are the spaced-apart ribs 39.

So it clearly indicates the jaw portion is that portion in Figure 8 and Figure 9 which extends forwardly from the annulus 34.

Q. That would be in conflict with your description of Fgures 8, 9, and 10?

A. No, it wouldn't.

Q. They show the composite element called the jaw.

A. The description of the figures in the drawing are merey indicative of a proximate approximation.

Q. Isn't the specification taken as a whole?

A. Yes, it is taken as a whole, and it must be construed as a whole; and when it is construed as a whole, it is set out that the jaw-forming portion is the member 24 shown in Figure 8.

Q. I note in Claim 26, it includes: A jaw having a flattened upper peripheral surface adjacent its forward end for engaging an electrode; and then comes a description of that.

And then he says: A pair of longitudinally directed spaced-apart arms extending rearwardly from said tubular portion.

A. That is right.

(110) Q. And it says the forward portion is tubular, and a jaw having a flattened upper peripheral surface adjacent its forward end for engaging an electrode, said forward end being tubular for the reception of a bared end of an electric cable for engaging said jaw at the location of said surface; and a pair of longitudinally directed spaced apart arms extending rearwardly from said tubular portion adapted for insertion into the end of a tubular handle.

The jaw in your Claim 24 has not included those portions?

A. No. As far as this case is concerned, it wouldn't make any difference whether you considered the tubular portion and the ribs extending rearwardly and the annulus as part of the jaw, or whether you considered it the body 24. I say as far as this case is concerned.

Q. That is my point exactly.

So when you consider the references the same manner of reading should be considered.

Referring to the Examiner's Answer, which is page 63, of which you have a separate copy, I believe, and starting at page 63.

A. Page 63 of the file wrapper?

Q. That is right, sir.

A. All right.

Q. No, I believe you agreed that the Smout patent, the (111) British patent, was cited there.

A. I testified to that, that the Examiner stated the references relied upon were the three patents.

Q. And referring to page 76, of the decision of the Board of Appeals, I believe you agreed that that also listed the Smout et al. patent as one of the references relied upon?

A. On page 76, they list the Smout patent, but they don't use it in rejecting the claim; neither did the Board of Appeals; nor the Examiner in his statement.

Q. Now, on page 83 of the file wrapper in the decision of the Board of Appeals, lines 7 and 8, they refer to the Smout et al. patent, do they not?

A. Page 83, lines what?

Q. Just a minute, I lost it.

A. Page 83, lines 7 and 8?

Q. Smout et al. is mentioned there, isn't it?

A. It is mentioned, but it wasn't used as a reference on which the claims were rejected.

Q. It is cited as a reference relied upon. It is listed in the decision.

A. Well, it wasn't used as a reference.

Q. I don' know what using as a reference constitutes.

A. Well, it shows it.

Q. Referring to page 78 of the record of the Board of Appeals decision, and page 79, the paragraph beginning on page (112) 78 and extending into 79, you pointed out that the reference characters f-1 and f-2 were incorrect.

Now, will you look at the Smout reference and see if it does not appear that the hollow leg A-2 was what the Board intended?

A. I don't know what the Board intended, sir.

Q. Well, if we substituted the hollow leg A-2, in the reference character A-2, for the reference to the F element, the citation would appear to be correct?

A. Yes, I would say so, but they didn't do it.

* * * * *

Re-direct Examination

Q. I have several questions. Mr. Donnelly, I refer you to page 2 of the final application, line 5, and I will ask you to read that line 5 and tell the Court what that means?

A. Well, line 5 follows the statement of the objects of the invention, beginning on page 1.

After setting out various objects of the invention, the sentence is: Other objects will appear hereinafter.

So that there may be other functions and results obtained which are apparent from the description of the invention which is not specifically referred to as being one of the objects.

(113) Q. Is there any patent statute, Mr. Donnelly, which says that an inventor has to list every novel feature and advantage that his structure can be put to?

A. No; quite the contrary.

Q. Mr. Donnelly, when is a different-sized welding cable required over, say, a certain size that you start out working with?

A. Well, now, it depends on different factors. Suppose you are leading the current from a welding machine four hundred feet away, and you are using what is known as a 300-amp holder, that is, 300 amps is your maximum.

Well, a single ought cable will carry 300 amps, but if it is four hundred feet away, you have got to have a lot of that cable maybe two-nought, or three-nought, because you get a lot of leakage in the cable.

And again, if you are welding with a quarter-inch rod and want to use more than 300 amps, you have got to use more than a single ought cable, you use the two ought cable.

It depends on the distance of the welder from the welding machine and the size of the rod the welder is welding with. That will determine the size of the welding cable.

Q. In other words, in each welding job there is a certain predetermined cable which common sense will tell you to use ;is that right?

(114) A. Or anyone skilled in the art would know that.

Q. So that if you wanted to carry more amperage, would you use a larger cable with the same holder?

Say you were welding on a job which required 400 amps, and that holder carrying the 400 amps naturally required a certain X-sized cable, and then you would put on a 600 amp job, and would you merely use the same holder and try to jam 600-amp cable in there?

A. No; you have got to get a 600-amp holder. You have to get a larger holder.

Q. Mr. Donnelly, does the disclosure in a patent application innclude the drawings?

A. Oh, yes, the drawings are part of the application.

Q. Does the claim in a patent have to define all the novel features and advantages of an invention or a structure?

A. No, the claim is going to structure, ordinarily.

• • • • •

Mr. Kreider: Your Honor, as defendant's case, I would like to offer in evidence the Patent Office booklet that was handed up to your Honor early in the trial.

The Court: It may be admitted.

(115) (The document was received in evidence and marked as Defendant's Exhibit No. 1.)

• • • • •

PLAINTIFF'S EXHIBIT 25

ANALYSIS OF CLAIMS

Elements	Claim 24	Beauregard Patent	Niemann Patent	Smout et al. Patent
	In an electrode holder of the class described	Preamble	Preamble	Preamble
1	a jaw having a flattened upper peripheral surface adjacent its forward end for engaging an electrode, said forward end being tubular for the reception of a bared end of an electric cable for engaging said jaw at the location of said surface;	NO	NO	NO
2	securing means for retaining said cable in said engagement with said jaw;	NO	NO	NO
3	a pair of longitudinally directed spaced apart arms extending rearwardly from said tubular portion adapted for insertion into the end of a tubular handle,	NO	NO	NO
4	and a connecting member for connecting the rear ends of said arms.	NO	NO	NO

Elements	Claim 26	Beauregard Patent	Niemann Patent	Smout et al. Patent
	In an electrode holder of the class described	Preamble	Preamble	Preamble
1	a jaw having a flattened upper peripheral surface adjacent its forward end for engaging an electrode, said forward end being tubular for the reception of a bared end of an electric cable for engaging said jaw at the location of said surface;	NO	NO	NO
2	securing means for retaining said cable in said engagement with said jaw;	NO	NO	NO
3	a pair of longitudinally directed spaced apart arms extending rearwardly from said tubular portion adapted for insertion into the end of a tubular handle,	NO	NO	NO
4	and a connecting member for connecting the rear ends of said arms.	NO	NO	NO

Elements	Claim 26	Beauregard Patent	Niemann Patent	Smout et al. Patent
5	the connecting member constituting an annulus engaging the inner surface of said handle rearwardly of its forward end;	NO	NO	NO
6	and an annulus at the forward end of said arms insertable into the forward end of said handle for engaging the inner surface thereof.	NO	NO	NO

Elements	Claim 45	Beauregard Patent	Niemann Patent	Smout et al. Patent
	In an electrode holder of the class described	Preamble	Preamble	Preamble
1	a tubular handle-supping body having a passage formed therethrough from end to end,	NO	NO	NO
2	said body, at the forward portion thereof, being flat on the upper side of its periphery to provide an electrode engaging surface.	NO	NO	NO

Elements	Claim 46	Beauregard Patent	Niemann Patent	Smout et al. Patent
	In an electrode holder of the class described	Preamble	Preamble	Preamble
1	a tubular handle-suping body having a passage formed therethrough from end to end,	NO	NO	NO
2	said body, at the forward portion thereof, being flat on the upper side of its periphery to provide an electrode engaging surface.	NO	NO	NO
3	and the forward portion of said body, on its upper side at the location of said surface, being thicker in cross section than the remaining portion of said body	NO	NO	NO

Elements	Claim 47	Beauregard Patent	Niemann Patent	Smout et al. Patent
	In an electrode holder of the class described	Preamble	Preamble	Preamble
1	a tubular handle-suping body having a passage formed therethrough from end to end,	NO	NO	NO
2	said body, at the forward portion thereof, being flat on the upper side of its periphery to provide an electrode engaging surface.	NO	NO	NO
3	the forward portion of said body on its upper side at the location of said surface being thicker in cross section than the remaining portion of said body;	NO	NO	NO
4	and said flat surface being of less width than the diameter of the forward portion of said body.	NO	NO	NO

MEMORANDUM OPINION

(Filed June 17, 1959)

The electrode holder jaw recited in claims 24, 26, 45, 46 and 47 is unpatentable over the Beauregard, Niemann and Smout, et al. patents. The only changes required in the prior art to merit the claims in issue are of a technical nature in the language of 35 U.S.C. 103, "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time he invention was made to a person having ordinary skill in the art to which said subject matter pertains."

Patentable invention does not arise where the changes in the prior are involve only mechanical skill or design ingenuity. A change in form, proportion or degree does not amount to invention. There is no question that the plaintifl has an improved product but the issue here is not whether plaintiff has an improved product but whether his improvement required the exercise of invention.

I find for the defendant. Counsel for the defendant will prepare appropriate findings of fact and conclusions of law not inconsistent with this memorandum.

Edward M. Curran /s/
Judge.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

(Filed October 6, 1959)

Findings of Fact

1. Thomas S. Donnelly, Jr., brought this action under 35 U.S.C. 145 to authorize the Commissioner of Patents to issue letters patent to him containing claims 24, 26, 45, 46 and 47 of his application entitled "Electrode Holder," Serial No. 203,594, filed December 30, 1950.

2. The Donnelly, Jr., application relates to an electrode holder for use in electric arc welding. The holder comprises a lower jaw member to which an upper jaw member is pivotally attached. The upper jaw is resiliently biased toward the lower jaw whereby a metallic welding electrode may be clamped between the two jaws. The lower jaw includes a forward portion on the upper edge of which a clamping jaw or face is provided for making contact with a welding electrode. This forward portion of the lower jaw is provided with a central bore while the rear portion is shown in the drawings as of skeletonized construction with spaced arms extending rearwardly to an integrally formed annular member. The specification of the application discloses that this rear portion may be "formed as a tube and slots formed in the tube to provide the ribs" or, "If desired," the formation of the slots may be dispensed with. Following the latter suggestion would result in a simple tubular form rather than a skeletonized construction.

An electrical conductor or cable may be passed through the rear portion of the lower jaw with the forward end of the cable extending into the bore in the forward portion of the jaw. A clamping means is provided for securing this forward end of the cable in electrical contact with the jaw. The application discloses that, if desired, solder may be poured into the bore in the forward end of the jaw about the cable to provide a soldered connection. Such use of solder might clog or block the entire passage or bore about the cable in the forward end of the jaw. It is also disclosed that an insulating cover, open at the top to expose the surface adapted to engage an electrode, may be applied to the forward end portion of the jaw. In one form, this insulating cover is open at both ends. In a modified form, it is closed at the forward end with a wall which serves as a closure of the forward end of the bore through the jaw. The application further discloses that in order to mount the insulating cover on the jaw, the cover must be slipped on the jaw from the forward end thereof and then moved longitudinally thereof. When mounted on the jaw, the insulating cover cannot be removed by moving it transversely of the jaw. A screw is used to prevent the longitudinal movement of the insulating cover along the jaw.

3. The Beauregard patent, No. 2,455,108, relates to a welding electrode holder, the lower jaw member of which comprises mainly a cylindrical tubular portion. The forward end of this member includes a substantially semi-cylindrical portion having formed therein a slot-shaped seat in which is disposed a copper block providing the electrode engaging surface. An electrical conductor or cable extends through the tubular rear portion and has its forward end clamped in engagement with this block while its other end is adapted for connection to a source of electrical energy for supplying welding current. An upper jaw member is pivotally secured to the lower jaw member and spring biased relative thereto so that a welding electrode may be gripped between the two members. A tube or casing of insulating material is fitted about the lower jaw member and provided with apertures to permit circulation of air for cooling purposes.

4. The Niemann patent, No. 1,860,262, relates to an electrode holder comprising a forward lower jaw portion of semi-cylindrical shape and a rear or handle portion. This latter portion is hollowed out to provide a bore and has sections removed to result in a skeletonized construction. A

cable extending from a source of electrical energy is received in the skeletonized portion, with a bolt and nut clamping arrangement being provided to maintain the cable in electrical contact with the jaw member. A sleeve of insulating material fits over the hollowed out or skeletonized rear portion of the jaw member in an arrangement which permits air to circulate through the rear portion for cooling purposes.

5. British patent No. 571,035 to Smout et al. discloses an electrode holder for electric arc welding. The holder includes a gripping jaw attached by means of a screw to the end of a hollow leg "of tubular construction." An electrical cable from an electrical energy source passes through this hollow leg, with the bared end of the cable extending through a passage between the gripping jaw and the leg in electrical contact with the electrode contacting portion of the jaw. This passage extends to the end of the jaw and the leg, and the cable extends the fully length of the passage. The jaw is made of a "hard wearing" alloy. This electrode holder of Smout et al. also includes a second arm structure comprising another gripping jaw mounted on another leg pivotally attached to the first leg whereby a welding electrode may be gripped between the two jaws.

6. As held by the Board of Appeals in sustaining the examiner's rejection of claims 24 and 26, Beauregard discloses an electrode holder having a jaw with a flattened peripheral surface adjacent its forward end for engaging an electrode, said forward end being tubular, as broadly recited in these claims, for the reception of the bared end of a cable; a securing means for retaining the cable in contact with the jaw; and a longitudinal portion extending rearwardly from the tubular portion for insertion into a tubular handle.

7. It would involve only a matter of choice or design, and not amount to patentable invention, to modify the rear part of the tubular lower jaw portion of Beauregard so as to provide a pair of longitudinally directed, spaced apart arms extending rearwardly, with a connecting member constituting an annulus at the rear ends of the arms.

8. As held by the Board of Appeals, the recitation in claim 26 relative to an annulus at the forward ends of the longitudinally directed, spaced apart arms does not distinguish from the Beauregard structure; the part of the lower jaw member of this reference just forward of the apertures which the Beauregard drawing shows in the handle forms an annulus insertable into the forward end of the handle for engaging the inner surface thereof.

9. Conformably with the holding of the Board of Appeals, prolongation of the passage through the lower jaw member of Beauregard or Niemann so as to extend therethrough from end to end, is not of patentable significance but would be obvious to a person having ordinary skill in the art.

10. The particular shape and dimensions that the plaintiff employs for the forward and lower portion of the lower jaw member at the location of the electrode engaging surface makes it possible to mount the insulating cover on the forward portion of the lower jaw through longitudinal sliding movement in such a manner that the insulating cover cannot be removed except by slidable longitudinal movement.

11. Conformably with the holding of the Board of Appeals, the particular shape and dimensions plaintiff employs for the forward portion of the lower jaw member at the location of the electrode engaging surface involve only matters of choice or design and do not involve the exercise of patentable invention.

12. The particular shape and dimensions plaintiff employs for the forward portion of the lower jaw member at the location of the electrode engaging surface do not bring about a new and unobvious result.

13. Conformably with the holding of the Board of Appeals, plaintiff's construction involv~~ing~~s only design considerations which would be obvious to a person having ordinary skill in the art.

14. Although plaintiff has an improved product, his improvement did not require the exercise of patentable invention.

15. Claims 24 and 26 are unpatentable over the Beauregard patent taken alone, and over the Beauregard patent taken with the Niemann Patent.

16. Claims 45, 46 and 47 are unpatentable over both the Beauregard patent and the Niemann patent.

17. Claims 24, 26, 45, 46 and 47 are unpatentable over the Beauregard, Niemann and Smout et al. patents.

Conclusions of Law

1. Patentable invention does not arise where the changes in the prior art involve only mechanical skill or design ingenuity.

2. Mere change in form, proportion or degree does not amount to invention.

3. Plaintiff is not entitled to a patent containing any of claims 24, 26, 45, 46 and 47 of his patent application, Serial No. 203,594, filed December 30, 1950.

4. The complaint should be dismissed.

Edward M. Curran,
Judge.

September 29, 1959.

JUDGMENT

(Filed October 6, 1959)

This action came on to be heard at this term, and thereupon consideration thereof, it is this 29th day of September, 1959

Adjudged that the complaint be and it is hereby dismissed, with costs against plaintiff.

Edward M. Curran,
Judge.

NOTICE OF APPEAL TO THE UNITED STATES COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA

(Filed November 2, 1959)

Notice is hereby given that Thomas S. Donnelly, Jr., the plaintiff above named herein, appeals to the United States Court of Appeals for the District of Columbia, from the judgment entered in this action on the 8th day of October, 1959.

Albert W. Rinehart.
Robert G. Mentag.

Dated this 2nd day of November, 1959.

PETITION FOR REHEARING

IN THE

United States Court of Appeals for the District of Columbia Circuit

United States Court of Appeals
For the
District of Columbia Circuit

FILED APR 7 1960

Joseph W. Stewart
CLERK

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No. 15,457

◆

THOMAS S. DONNELLY, JR.,
Plaintiff-Appellant,

vs.

ROBERT C. WATSON, Commissioner of Patents,
Defendant-Appellee

◆

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES
FOR THE DISTRICT OF COLUMBIA

◆

ALBERT W. RINEHART,
1311 G Street, N. W.,
Washington 5, D. C.;

ROBERT G. MENTAG,
3437 Book Tower,
Detroit 26, Michigan,
Counsel for Plaintiff-Appellant.

Interstate Brief & Record Co., 642 Beaubien St., Detroit 26, Michigan

IN THE

United States Court of Appeals for the District of Columbia Circuit

◆

No. 15,457

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THOMAS S. DONNELLY, JR.,
Plaintiff-Appellant,
vs.
ROBERT C. WATSON, Commissioner of Patents,
Defendant-Appellee

◆

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES
FOR THE DISTRICT OF COLUMBIA

◆

PETITION FOR REHEARING

◆

The appellant above named respectfully petitions this Honorable Court for a rehearing of the appeal in the above entitled cause, and in support of this petition represents to the court as follows:

The Court erred in interpreting the patent to Beauregard and the conclusion of this Court is based upon such improper interpretation.

The holding of this Court states that "in Beauregard the cabling was brought quite far forward before being attached to any metal part of the holder; and for Donnelly to provide a somewhat CLEARER passage for air through the entire length of the lower jaw, than was done by Beauregard, does not amount to invention." In the first place, Beauregard does not have a CLEAR passage extending from end to end of the jaw. There is no CLEAR passage through the jaw of Beauregard as clearly shown from Fig. 2 of the Beauregard patent.

Donnelly in his experimentations had brought the cable up to within three inches of the end of the jaw, as shown in Plaintiff's Exhibit 11, but in this jaw there was no passage going through it. In this respect, Donnelly in his experimentations in Exhibit 11 had already done what Beauregard is supposed to show.

Donnelly had to go farther than this. He had to form a passage clear through the jaw in order to get the air circulation THROUGH THE JAW. Consequently, the statement that Donnelly shows a CLEARER passage than Beauregard is in error as Beauregard does not show any passage THROUGH the jaw.

This limitation of having the passage extend through the jaw is in all of the claims involved in this case, and there is nothing in the prior art to suggest such a passage extending THROUGH the entire length of the jaw.

In the Donnelly application, the jaw is shown as covered with a layer of insulation represented in Fig. 2, by the numeral 31, and again as shown in Fig. 12.

Claim 46 sets out the specific construction of the jaw on which this insulation is mounted.

When the screw 38, shown in Fig. 5, is contacted by a short and burned off, or when this screw becomes loose, the insulation remains firmly mounted on the jaw. The only way that it can be removed is by a longitudinal movement. Thus, by forming the jaw in the shape defined a NEW FUNCTION and a NEW RESULT is obtained. This is not intimated or suggested by any of the prior art.

It is submitted, therefore, that the Court should apply the claims to the prior art, and if the subject matter defined by the claims is not present in the prior art, or intimated or suggested, or obvious from the prior art, patentability must be found.

There is no insulation on any of the holders of the prior art, and consequently, obviousness would not appear.

Therefore, it is clear the Court is in error.

ROBERT G. MENTAG,
Attorney for Appellant.

ALBERT W. RINEHART,
Of Counsel.

State of Michigan,
County of Wayne—ss.

Robert G. Mentag, being first duly sworn, on oath certifies and says: That he is one of the attorneys for appellant in this cause; that he makes this certificate in compliance with Rule 26 of the rules of this court; that in his judgment the within and foregoing petition for rehearing is well founded and is not interposed for delay.

/s/ Robert G. Mentag.

Subscribed and sworn to before me at Detroit, Michigan, this 31st day of March, 1960.

/s/ Charlotte H. Cichowski,
Notary Public in and for Wayne County,
Michigan.
My Commission expires July 20, 1962.

(Notarial Seal)